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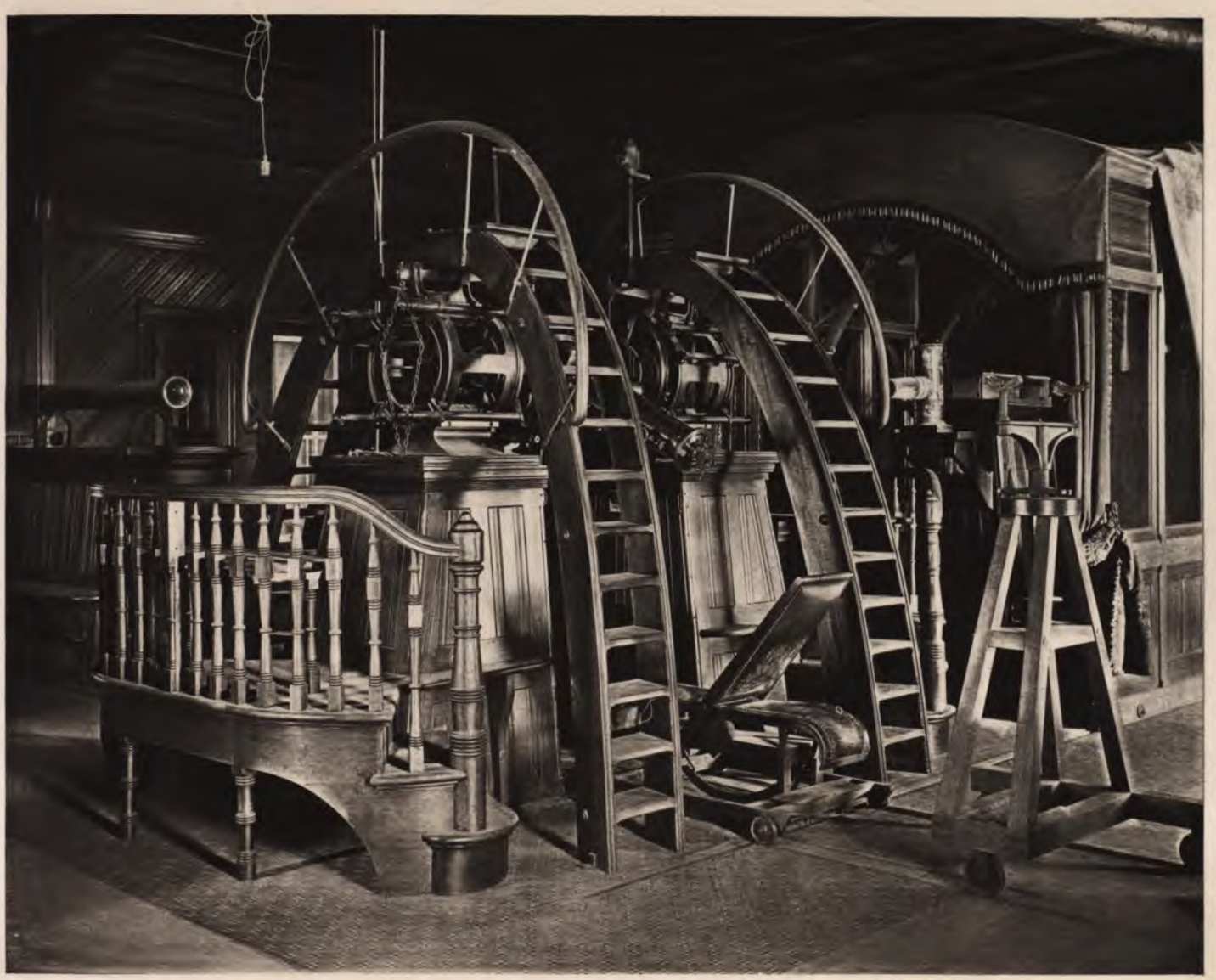

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MERIDIAN CIRCLE OBSERVATIONS

OF

310 STANDARD STARS,

Including 157 Stars, from the American Ephemeris, Connaissance des Temps, and British Nautical Almanac, which are not in the Berliner Jahrbuch; and 153 Stars from the Berliner Jahrbuch.

1893—1896.

By R. H. TUCKER, Astronomer in the Lick Observatory.

Preface.

In presenting the observations of this volume, the first in which Meridian Circle work of the Lick Observatory has appeared, it has been necessary to devote considerable space to the instrument, and to the methods of observation and reduction.

In the arrangement of the observations of standard stars, it is intended that no further reference to the Ephemerides will be required. The full list of 310 stars is given at the end of the volume; with references to the page, upon which the single observations are collected, with Ephemeris places and comparison. Original observations may be looked up in the details by nights, where everything necessary for the reduction is included. Results of comparisons are combined, for discussion, in separate tables.

Rather than overburden the Introduction, tables containing specific discussions are arranged in order, following the text; and reference to any portion will be made explicit.

These observations were made in the period between September, 1893, and June, 1896; and were undertaken at the request of Doctor E. S. HOLDEN, *Director of the Observatory. Every star down to −40° Declination, which occurs in the American Ephemeris, the British Nautical Almanac, and the Connaissance des Temps, and which is not included in the Berliner Jahrbuch, has been observed. The places of the Fundamental Stars are taken from the last named authority.*

Results from this series of observations have been furnished to Doctor Auwers, and to Professor Newcomb, and have been employed in their recent discussions of Standard Star Places.

This volume was entirely prepared for the press in May, 1897, but circumstances beyond the control of the Observatory, have delayed its publication. It was authorized by the Board of Regents of the University, in December, 1896.

Observations with the Meridian Circle have been continued, without interruption at the close of this series, and the reductions have been carried forward while this volume was under preparation.

RICHARD H. TUCKER.

March, 1900.

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CONTENTS.

INTRODUCTION. PAGE

DESCRIPTION OF THE INSTRUMENT: 1

(1) Photograph. (2) The Telescope. (3) The Circles. (4) The Microscopes. (5) Illumination. (6) The Piers. (7) The Collimators. (8) The Level. (9) The Room.

OBSERVATIONS OF 310 STANDARD STARS: 6

(10) The List. (11) Fundamental Stars. (12) Prosecution of the Work. (13) Observing Methods. (14) Weights. (15) Instrumental Corrections. (16) Collimation. (17) Level. (18) Azimuth. (19) The Mire. (20) Thread Intervals. (21) Clock Corrections. (22) Circle Readings. (23) Runs. (24) Flexure. (25) Refraction. (26) The Nadir. (27) Graduation Error. (28) Reductions. (29) Systematic Corrections. (30) Reduction for Magnitude. (31) Bisection Error. (32) The Latitude. (33) Probable Error. (34) Ephemeris Comparison.

Tables I, II, III, IV, Fundamental Stars, ... 28

V, VI, Instrumental Corrections, ... 31

VII, Thread Intervals, ... 38

VIII, Clock Rates, ... 39

IX, Flexure, Micrometer, Runs, ... 41

X, Graduation Errors, ... 43

DETAILS OF OBSERVATION, BY NIGHTS: 47

LIST 1: Results of Observation, B. J. Equatorial Stars, ... 145

Tables XI, XII, Comparison with Ephemerides, ... 187

LIST 2: Results of Observation, B. J. Circumpolar Stars, ... 191

Table XIII, Comparison with Ephemerides, ... 218

LIST 3: Results of Observation, Zenith Stars from B. J., ... 220

Tables XIV, XV, Comparison with Ephemerides, ... 224

LIST 4: Results of Observation, Stars Not in B. J., ... 226

Tables XVI, XVII, XVIII, XIX, Comparisons, ... 273

XX, Systematic Differences, c. p. obs., ... 283

XXI, Obs. Difference, (E—W), ... 286

XXII, Probable Error, ... 287

XXIII, Latitude, Consecutive Series, ... 289

XXIV, XXV, XXVI, XXVII, XXVIII, Latitude Results, . . . 296

LIST 5: Combined List of 310 Ephemeris Stars, ... 302

LIST 6: Places of 50 Comparison Stars, ... 310

APPENDIX: Comparison with *Auwers* and *Newcomb*: XXIX, XXX 313

INTRODUCTION.

THE MERIDIAN CIRCLE.

(1) The general features of the REPSOLD instrument are well known. That of the Lick Observatory, mounted in 1884, is essentially a duplicate of the one at Strasburg. The cut which precedes, as the frontispiece to this volume, and which is from a photograph by Mr. C. D. PERRINE, will show the form and arrangement of the mounting. It may well take the place of any elaborate description.

(2) **The Telescope.** The object glass, by CLARK, has a clear aperture of 6.4 inches (16 cm.), and a focal length of 6 feet 4 inches (1.9 m.). The central cube is 10.2 inches (26 cm.) square, and the faces are pierced by two circular openings 7.2 inches (18 cm.) in diameter, to permit of a view between the collimators. The two halves of the telescope taper slightly, from 8.1 inches outside diameter at the cube to 6.5 inches at the least outside diameter (20 to 16 cm.). The objective and ocular are interchangeable. A power of 90 has been employed in this series of observations, giving a field of 12′, the set of seven transit threads occupying half the field. The definition is excellent. As an instance, the double star π Aquilae, Struve 2583 (6, 6½, 1″.3), has been clearly separated, and the position of the two components sketched, during the ordinary course of observing.

The length of the axis, between the points of support, is 3 feet 2½ inches (0.97 m.), and the distance between the counterpoises is 2 feet 2 inches (0.66 m.).

The pivots are 3.6 inches (91 mm.) in diameter, and 1.3 inches (33 mm.) long. There are brass covers. The telescope can be clamped from either end. The clamp rod runs inside the hollow handle bar, which is joined to a fixed ring of brass next the cube, and extends nearly the length of the telescope. Both the clamping of the telescope and releasing of the same are performed by the thrust of the screw at the end of the clamp rod.

Two pieces of brass, giving a cylindrical bearing of the proper radius, may be screwed upon the handle bar, to support the Hanging Level in a plane parallel to that of the telescope. There is also a circular handle, which may be used for setting the telescope. The collar of the clamp arm incloses a fixed circle upon the telescope axis, 10 inches (25 cm.) in diameter, and the arm ends below in a support fixed to

the inner side of the pier, at a distance of 24 inches (60 cm.) below the center of the axis. The clamp arm is easily released from this support when the instrument is to be reversed.

The slow motion is given by two rods, which join the lower end of the clamp arm, acting in combination with a spring at that point. There is also a chain pulley, not at present in use, by which slow motion can be given by an observer when reading the nadir.

The Right Ascension and Declination micrometers carry, each, one movable thread. The drums, which are 1.5 inches (38 mm.) in diameter, are divided into 100 parts, numbered at each five divisions. The whole revolutions are recorded by an inner drum in both cases. The value of one revolution of each micrometer screw is, approximately, 48".1. The threads are about 1" in thickness, as seen in the eye-piece.

(3) **The Circles.** The diameter of the circles, at the graduations, is 26 inches (66 cm.), and the rim of silver is 0.2 inch (5 mm.) wide. Both circles are graduated alike, to every 2′ throughout. The degrees are numbered, increasing in the opposite direction to a clock face. The 10′ divisions are longer than the intermediate ones; and those at 30′ are longer than the 10′ divisions. The division marks are, roughly, 10" in width.

There are 130 graduations to the inch; one centimeter contains 52.

One circle is fixed to the telescope. The other may be readily released and rotated upon its axis. It is clamped in position by means of two opposite screws, the thrust of which brings the pressure of two lever arms upon the surface of a circular plate, concentric with and firmly attached to the graduated circle. The circular plate is 0.4 inch (10 mm.) thick, and 12 inches (30 cm.) in diameter. A small toothed wheel, with wooden head, gears into the toothed rim of the circular plate, and the motion of rotation is smooth and under exact control. The movable circle can be set without removing the eye from one of the microscopes, the geared wheel being just within reach. During the process of measuring division errors there never arose any doubt as to the fixity of the circle, when clamped.

The rim of the graduated circles is 1.4 inches (35 mm.) wide on its face and 0.8 inch (20 mm.) thick. There are eight spokes, 8 inches (20 cm.) long, and in thickness tapering from 1.3 to 0.8 inches (33 to 20 mm.).

The planes of the two faces are 30 inches (76 cm.) apart.

(4) **The Microscopes.** There are four microscopes on each side, alike in all respects; and there is also an extra pair, of greater power, intended for reading

upon diameters for the measurement of division error. The details following apply to the systems of four. They are 26.5 inches (67 cm.) in length, with a clear aperture of 0.55 inch (14 mm.). Each is provided with a small cover to the objective, pivoted at the side of the face.

The two supports, where they are clamped to the frame, are 18 inches (45 cm.) apart; and the eye end projects 8 inches (20 cm.) from the microscope bearer.

The objectives are 5 inches (13 cm.) from the face of the circles. The effective magnifying power is 40 diameters.

The heads are divided into sixty parts, numbered at each five divisions.

There are two pairs of threads, 1½′ apart, each pair including about 25″ of the graduated circle, and the field is very nearly one degree. One revolution corresponds to one minute of the graduated circle.

The setting telescope is supported on fixed wyes, at the level of the circle, and can be read from either end. It has a field of 1½°, with a single thread for setting upon the divisions. The full length is 30 inches (76 cm.), and the power is about 15. The central cube, to which the two tubes are joined, contains two prisms, by means of which the line of sight from each end is turned through 90°. The illumination of the graduated circle, opposite the circular glass cover of the cube, is effected by reflection from a metal plate above the cube, the light having been first reflected from a similar plate, higher up.

(5) **The Illumination.** The lighting of all parts of the instrument is obtained from either one of two lamps, of the "Rochester" type, which are placed at a distance of 9 feet (2.7 m.) from the axis of the instrument. The heat of each lamp is carried entirely from the room, by a vertical funnel of tin.

The light, passing through the hollow pivot of the telescope, falls upon one of two rectangular mirrors within the cube. One of the mirrors reflects the light to a half-inch circular mirror attached to the inside of the object glass, and from this last the field of view is directly illuminated.

By turning a rod at the eye end, the frame supporting the mirrors is reversed, and the face of the opposite mirror is presented to the light. This is now reflected to the eye end, for bright wire illumination. The same rod carries another milled head, the rod of which interposes a diagonal gauze screen at the side of the opening receiving the light, and the intensity may be thus varied to any desired degree.

For the microscopes, the light falls upon four circular mirrors, set within the bearer at the circumference of the opening to the axis. These reflect the light to rectangular mirrors, fastened to the microscope tubes, and inclined so that the rays are sent to the graduated face of the circle, passing through ground glass

near the end of the tubes. The scheme of illumination is efficient and satisfactory throughout.

(6) **The Piers.** These are of brick. The central base, under the Meridian Circle, is 9 feet 3 inches north and south, by 13 feet 7 inches at the foundation (2.7 m. by 4.1 m.). The dimensions decrease with each vertical course of brick, and at the floor are 5 feet by 10 (1.5 m. by 3 m.). The two piers supporting the instrument are 34 inches by 44 (86 cm. by 110 cm.) at the floor, and 22 inches (55 cm.) square at the top. The total height is 12 feet (3.6 m.). The sides next the telescope are vertical.

The bed plate is 20.5 inches by 16.5 (52 cm. by 42 cm.). There are thin strips of metal under the corners, and a layer of cement between the base and the top of the pier.

For the level adjustment there are three capstan-headed screws—two next the telescope and one near the outside edge. The thrust of the former is upward, and of the last, down. For azimuth there are four screws, countersunk, near the upper edge of the bed plate—two each, north and south. There are two opposing screws, on the east and west faces of the microscope bearer, which thrust against the bed plate, near its top. The microscope bearer is joined to the bed plate by a large bolt at the center, ending in a nut above.

The top of the bed plate is 13 inches (33 cm.) square, outside measure. Both piers are exactly alike as regards these details of mounting. They are cased in wood, with a layer of heavy felt between the surfaces. The platforms, by which the microscopes are conveniently reached, are not supported in any sense by the casing of the piers.

The microscope bearer has a length, east and west, of 17 inches (43 cm.) between the extreme edges of the rims; and a diameter of 23 inches (58 cm.). The base of the superstructure, which sets into the top of the bed plate, is 9.7 inches (24 cm.) square. The six spokes of the inside face support a circular plate, 10 inches (25 cm.) in diameter, of which the wyes for the pivots form part.

The counterpoise is a lever 26 inches (66 cm.) long, supported at the center, which is 6 inches (15 cm.) from the inner face of the microscope bearer. The weights hang by a chain, at the outer face, and rest upon the floor of a recessed arch in the pier below, when the instrument is raised from the wyes.

(7) **The Collimators.** The telescopes for measuring collimation and flexure are of the same aperture and focal length as the Meridian Circle: 6.4 inches (16 cm.) and 76 inches (1.9 m.), respectively. The micrometers can be rotated easily; that of the south collimator is adjusted to read upon vertical threads for the

measurement of collimation; and that of the north collimator upon horizontal threads for measurement of flexure. One revolution of the micrometer screws is about 22″. The magnifying power is 120. The piers are 10 feet 8 inches (3.2 m.) by 9 feet (2.7 m.) at the base; and 6 feet 7 inches (2.0 m.) by 1 foot 10 inches (56 cm.) at the top. The total height is 12 feet (3.6 m.). The object glass is 8 feet 3 inches (2.5 m.) from the Meridian Circle objective; and the collimator micrometers are 35 feet 6 inches (10.7 m.) apart.

The supports of the telescopes are 4 feet 6 inches (1.3 m.) apart. That nearest the eye end has capstan-headed screws, for adjusting the level of the axis. At the other support are similar screws for adjusting the azimuth.

(8) **The Level.** The Hanging Level is 38 inches (96 cm.) in length, between the supports; and when in position, the surface of the bubble is 13 inches (33 cm.) below the centers of the pivots. The bubble tube is 6½ inches (16 cm.) long, with twelve divisions to the inch (one division equals 2 mm.). The value of one division has been determined, both by means of the "level trier," and by hanging the level to the handling rod of the Meridian Circle, and equals $0^s.071$ at temperature 60° Fahr.

(9) **The Room.** The observing room is 43 feet (13 m.) north and south by 38 feet (11.5 m.) wide. The walls are double, there being an air space of 24 inches (60 cm.) between the inner wall of redwood and the outer Louvre work of galvanized iron. The height of the room is 15 feet 6 inches (4.7 m.) at the center, and on all sides the walls are arched at the top to meet the ceiling, which is of redwood. Above the ceiling is an air space 8 feet (2.4 m.) high at the sides of the observing slit, and sloping to meet the east and west walls. The front of this air space is covered with coarse wire netting.

The observing slit is 3 feet (0.9 m.) wide, and is closed at the ends by shutters 19 feet (5.7 m.) high, which are in two parts, opening inward. There was also added, in September, 1894, a single shutter at each end, which slides upward in a groove by means of a weighted pulley, and serves effectively as a windbreak for the instrument, when down. These shutters are 7 feet high, and the top is at 72° zenith distance. For stars lower than this, they must be raised.

The roof of the observing slit is in four parts—two each side—opening upward. They are counterpoised, nearly, by weights at the ends of the ropes passing from the levers in the upper air chamber down through the observing room to the basement. The simple mechanism is entirely under cover, and is quick and easy of operation.

There is a rolling canopy, with which the Meridian Circle may be entirely covered when not in use.

OBSERVATIONS OF 310 STANDARD STARS.

(10) **The List.** The plan of the observations contained in this volume has been the determination of the places of all stars north of —40° Declination, which are given in *The American Ephemeris* (A. E.), *The British Nautical Almanac* (N. A.), and the *Connaissance Des Temps* (C. T.); and which are not included in the *Berliner Jahrbuch* (B. J.).

With the additional stars introduced in N. A. for 1897, there are 157 stars specified by the conditions. Of these, 15 are above 70° Declination, and have been observed at both culminations. Four observations have been given each star, in each position of the instrument, fixed circle east and west; the circumpolars have received the same number, at both culminations, or sixteen in all.

Of 157 stars not in B. J., there are to be found:

66 in A. E.,
85 in C. T.,
19 in N. A.,
24 in N. A. 1897, not included in earlier lists; and
11 of these stars occur in the list of 303 stars given in B. J. appendix.

It was no part of this plan to include stars from 303; but whenever any star observed is to be found there, comparison of the places has been made.

Of the list, 41 stars occur in more than one Ephemeris, including 303, and there remain:

45 in A. E. only,
52 in C. T. only,
6 in N. A. only,
13 in N. A. 1897 only.

The comparison made by Dr. AUWERS, and published in B. J. 1884, gives the corrections necessary for the reduction of any star found in B. J. and in one of the other Ephemerides, to the B. J. system. *This series of observations may be considered as, in a measure, supplementing that comparison, since it contains such stars as are not in B. J.*

(11) **Fundamental Stars.** The observations have been reduced with a list of 86 equatorial stars, from B. J., as fundamental: for both Right Ascension (clock corrections) and Declination (equator points). They form part of a list of 99 stars, selected by Dr. AUWERS, for a Right Ascension system, in 1889, when the design of this work was under discussion.

The B. J. places of circumpolar stars have been used in the determination of azimuth. The observation of the zenith distance of these stars furnishes material

for the reduction of the observed Declinations, by equator points derived from circumpolars. Since the nadir has been regularly observed, the Declinations may be deduced from the zenith with a standard latitude. Both processes will be given explanation in detail, in the discussion of latitude results, Table XXIII. As presented here, the observed places will be subject to the corrections required by the list of B. J. equatorial stars, used as fundamental.

The observations of fundamental stars, of circumpolars, and of B. J. stars at the zenith, have been used in obtaining places of these stars, reduced to the same system, and in the same manner, as the selected list of stars not in B. J. The final place, deduced for a B. J. equatorial star, is independent, virtually, of its use as a fundamental.

There will be found in Tables I to IV, the full comparison of the places of the fundamental stars, from the various Ephemerides. The individual and systematic differences, there presented, are sufficient to enable one to reduce the places of all stars observed, from the system adopted to one of the others. And further, whenever the results are available, of a more complete discussion of standard star places than has recently been made, the reduction of these observations to a new system will be simple and expeditious.

The results of the comparison of the Ephemeris places of 86 fundamental stars, actually employed, are here presented in brief:

Mean Δ	B. J.—A. E.	—0^s.026	+0″.05	for	50	stars.
"	B. J.—C. T.	+0 .015	—0 .22	"	53	"
"	B. J.—N. A.	+0 .021	+0 .18	"	57	"
"	B. J.—303	0 .000	—0 .51	"	49	"

(12) **Prosecution of the Work.** Upon joining the staff of the Observatory, in July, 1893, I was requested by the Director, Dr. E. S. HOLDEN, to undertake the observation of such stars as would be included in the plan outlined above. A list of stars, from the Ephemerides up to 1879, had been made out, and the fundamental list, before referred to, had been selected. The list of stars to be determined has been increased by those which had been added to C. T. and N. A. up to 1895; and subsequently, by the addition of the southern stars, first introduced in N. A. for 1897.

Some preliminary work was done with the instrument, in order to become familiar with its performance. During this period the casing of the piers was removed, and readjusted, since the shrinkage of the wood and the falling of small pieces of mortar had produced contact.

Observing was begun upon the list in September, 1893. During the first ten

months the places of 125 stars were determined, Circle East. About 1600 observations of standard stars were made.

The following year the full list of 158 stars* was determined, Circle West, with the lower culminations of the stars above 70° Declination. About 1700 observations of standard stars are included. The last ten months were devoted to the stars remaining from the first year, Circle East, and to the lower culminations omitted in that period. But 700 observations of standard stars were required to complete the program. In all, the places of 310 Ephemeris stars have been determined, with about 4000 observations.

Including nadirs, flexure readings, and comparison stars, 5000 observations were made, exclusive of determination of clock correction on separate nights, up to the close of the series in June, 1896.

In the third year the determinations of the division errors of the 1° arcs of the fixed circle, and of the 3° arcs of the movable circle, were made. For the simultaneous reading of the two circles, in this process, Mr. R. G. AITKEN rendered volunteer assistance, and it is a pleasure to record the conscientious excellence of his work.

More than one hundred daily sets of readings, of an hour each, or 1800 double readings of each circle, were required for the measurement of division error.

The reductions were begun in the first winter, and were entirely completed in October, 1896, very closely keeping pace with observation. After some time spent in special investigations, preparation for the press was begun in December, and has been completed in five months.

While the list is not an extensive one, it has required about as much observing as can be kept up promptly in reduction by one observer. Including the original chronograph reading, through the entire reduction and the preparation for the printer, the work has been done without assistance. Although this has involved much routine labor, there is a gain, in the uniformity of the reduction in all stages, and in the absence of mistakes which may arise from misunderstanding, and from divided responsibility. A somewhat larger and more condensed list would not have greatly increased the time required for observing, and for reduction. But, aside from the determination of comparison stars, for current use in the Observatory, there has been no occasion for enlarging the scope of Meridian Circle work in this period. The observed places of 50 comparison stars are given at the close of the volume, including those observed up to the end of 1896.

Seventy nights in a year are sufficient to complete the four observations for such a list as this. It would be possible to obtain that number of nights in the

*The star $\gamma 2$ Sagit., $17^h\ 59^m$ —30°, has been included in the list, owing to an error of 1 min. in C. T. Right Ascension. The observations have been reduced, without reference to the B. J. place.

three summer months, at Mount Hamilton. But the demands of Meridian Circle work are rather for an average distribution throughout the year; and it has sometimes been difficult to keep the list well up to the requirements, during the winter months.

As part of the history of the Meridian Circle work, it should be added, that the observation of the Declination of 360 stars, of which 100 are from Boss's Catalogue, was begun in August, 1896; and has been completed, through the first stages of reduction, during the preparation of the foregoing series.

(13) **Observing Methods.** It has been most convenient to observe in regular programs, which have generally covered four hours of Right Ascension, and have been repeated four times in one position of the instrument. With as many stars from the list to be determined, as can be arranged, there are usually taken eight fundamentals, or two per hour; three pairs of circumpolars; and three nadirs, of which one usually precedes, and one follows the program of stars.

For a longer program, the same proportion of fundamentals is retained. Two or three readings upon the Mire are taken during the night, for a check upon the azimuth, and upon its change.

A complete observation can be made and recorded, except for slow moving north stars, in from four to five minutes; but, owing to unequal distribution in the lists, the average of observations per hour will always be much smaller than would result from that rate of speed.

All transits have been recorded with the chronograph. The custom has been to tap the key when the bisection is fairly visible, as is the practice of many observers. While the record will thus be later than if the attempt is made to make the tap simultaneous with bisection, this will be true for all transits; and it is probable that the effect of personal equation will be more nearly uniform, for slow and quick moving stars; and may possibly have less variation for different magnitudes. Seven threads have been used for all except close circumpolars, for which five have ordinarily been taken.

For zenith distance the setting of the telescope is made upon the nearest 2′ division, and it is not disturbed thereafter. The bisection is made at the center transit wire, with the movable thread of the Declination micrometer. The telescope has not been clamped, the resistance of the collar, to which the clamp is attached, being sufficient to insure against movement from any slight pressure.

The effect of runs correction is quite eliminated from the microscope readings, if the settings are made with precision; but the error of runs has been determined from all the circle readings of each night, and has been applied throughout the reductions.

The reading of the circle immediately follows the transit of the star. It could be made in advance, if occasion required. In practice a succession of bisections upon the nadir, and upon the collimators for flexure, with the reading of the circle coming in the midst of the series, reveals no change in the position of the telescope; nor should it be anticipated, with the delicate handling proper to such an instrument.

In the nadirs, the level determination is first made, by reading upon the center transit wire and its image; half the readings upon the image of the Declination wire are taken, the circle microscopes are read, and the remaining readings upon the Declination image follow.

The record of the barometer is taken three times usually, while readings of the external thermometer are made at intervals from half an hour to an hour. Changes are commonly slight, in settled weather; the external temperature usually rises throughout a good night, from ten o'clock until late in the morning, a condition rarely experienced elsewhere.

(14) **Weights.** In recording the weight of the night, the steadiness has been the principal factor considered. In the scale used, 5 represents the best conditions, and 1 the worst. The estimate has usually been rather conservative, and applicable always to the worst condition at any part of the night. Observation has generally been suspended, if the estimate was not at least weight 2. The weights have not been used in combining separate determinations. In general it is assumed that if the conditions are good enough to continue, the results will have average value. Usually the night remains consistently good or bad throughout.

(15) **Instrumental Corrections.** Values of *c b a*, of the position of the *Mire*, and of the circle reading at the *Nadir* will be found arranged in a consecutive series for the whole period of observation, in Table V, with temperature included. And in Table VI the record is combined, in a series by months.

(16) **Collimation.** This has been determined by readings upon the collimators, north and south. A determination has usually been made for each night of observation, sometimes during the night, more often in the afternoon preceding, and occasionally on the following morning. If there has been found any sensible difference between two successive determinations, separated by not more than two days, the value has been interpolated for the night. The collimation correction has been small, and incidental changes, in general, are slight. Possibly the mean for periods of some length of time could as well have been adopted, in place of the

so-called instantaneous value. There is some evidence of a progressive change, as shown in the following annual means of the correction:

1893 to 1894,	Circle East,	c	$-0^s.009$.
1894 to 1895,	Circle West,	c	$-$ .002.
1895 to 1896,	Circle East,	c	$+$ .010.

(17) **Level.** The level correction used in the reductions has been derived from observation of the nadir, with the collimation error applied to the readings. It has been determined, in general, three times each night. For the R. A. micrometer, the value of one revolution, $3^s.210$, has been used. The results have occasionally been checked by determinations with the Hanging Level, one division $0^s.07$, made usually in the afternoon.

The level is subject to but slight changes during periods of considerable length, but there is usually a progressive change through the year. This may be due to the change in mean temperature, indirectly; but it is quite impossible to connect incidental changes in level with any law of temperature variation. The average change in level between successive nights of observation, often separated by intervals of considerable length, does not exceed $\pm 0^s.03$; the largest amounting to $0^s.1$. A rate for the correction of the night has been adopted, only, when the observed change is progressive, and amounts to $0^s.02$ in the course of the night. The probable error of a single determination of b is $\pm 0^s.005$, including changes too small to be considered by the use of a rate.

(18) **Azimuth.** The azimuth correction has been determined by transits of B. J. circumpolar stars, and has been checked by readings upon the Mire. It is subject to comparatively large and abrupt changes between successive nights of observation; on the average $\pm 0^s.08$, maximum $0^s.3$.

A rate for the night, usually $0^s.01$ or $0^s.02$ hourly, has been adopted only when confirmed by the Mire, as progressive, and when it amounts to $0^s.04$ in the course of the night.

The probable error of a determination of a, from one pair of circumpolars, is slightly less than $\pm 0^s.02$, including changes too small to be considered by the use of a rate.

A list of 48 B. J. stars has been selected for the azimuth determination — with four exceptions, north of 70°. No special effort was made to observe them uniformly, but such were included in each program as suited the arrangement of the work. The closer stars to the Pole were taken, by preference, when possible. Of the list, 45 have been observed at either one of the culminations, and 32 at both. The observations have been used to obtain places of the stars, or corrections to the B. J. places; but these corrections have not been used in the reductions. Since

six circumpolars are, in general, observed each night, and the results are combined with the reading upon the Mire, the observed position of any one star is not greatly influenced by its use in the determination of azimuth.

Early reductions indicated some dependence of a upon the Declination of the star. It was exhibited in the individual values of a obtained by the application of clock correction and other instrumental corrections to the transits of separate stars, and enters with contrary sign for the two culminations. It may, possibly, be due to personal equation in transits, by which all slow moving stars are observed too early, at both culminations. The reductions have, accordingly, been made by combining the stars, as far as possible, in pairs of nearly the same Declination, the effect being evidently eliminated from the mean of such pairs. In making up the correction for the night, pairs of stars above 80° are given weight 2, while a pair of the stars closest to the Pole is given weight 3. Taking into account the errors of observation, and of other constants, no further refinement, as to weights, is considered necessary.

(19) **The Mire.** The use of a fixed meridian mark has served as an effective control upon the rather large and irregular changes in the azimuth of the instrument. The mark is a circular hole, 0.05 inch (1.3 mm.) in diameter, in a metal plate, which is fixed vertically upon a brick pier 97 feet (29 m.) south of the center of the Meridian Circle. An intermediate lens, 6 inches (15 cm.) in diameter, is mounted beneath the object end of the south collimator, and serves to bring the mark into focus.

The pier of the meridian mark is sheltered by a small house, in the front of which a shutter is opened, to view the mark at night, when it is illuminated by a small electric light, supplied by storage battery. The current is turned on by a switch on the south wall of the observing room. A corresponding shutter, on the south side, permits direct sky illumination in the day time; but the image is usually extremely unsteady, when viewed through the currents of heated air rising during the day. At night the aperture appears as a steady, well-defined disc, 12″ in diameter. Readings are made by contacts at the two rims, adopting the center of the disc as the reference point. The apparent position is undoubtedly changed by having to adjust the lamp, or by replacing it when worn out; but through periods of considerable length it is sensibly constant.

The position of the center has varied between 12″ and 16″ west of south. The disc is 3° below the horizontal plane of the instrument.

(20) **Thread Intervals.** All transits of B. J. stars have been used in obtaining the values of the thread intervals. For individual threads the circumpolars only have in general been used; but for the reduction of the center thread to the

mean of seven, equatorial transits have also been employed. The reduction of each thread to the mean of seven, or to the mean of five, is first taken out from the transits. The reduction to the center thread, V, is then derived for separate threads, and for the groups of five or seven. All transits are finally reduced to V, and the collimation of that thread is observed.

In Table VII will be found the thread intervals, for the period covered by this series of observations. With the excessive dampness, prevailing during long winter storms, some of the threads become perceptibly slack, and it appeared advisable to derive the values of the intervals anew, when this occurred. But experience has shown that no sensible change in the relative positions follows such slackening, and the reduction to the center thread might have been used as constant, for much longer periods than has been the practice.

(21) **Clock Corrections.** The clock corrections and rate have been obtained from the transits of the list of B. J. equatorial stars, used as fundamental. When the night is a full one, of four hours, the rate has been obtained by a least square solution of the observed corrections of the eight stars. The hourly rate has occasionally been slightly modified, by comparison with the daily rate, especially when the computation indicates an unusual residual for any one of the stars that has strong influence upon the determination of rate. For broken nights, the daily rate can usually be adopted, for the short period covered by observations.

The DENT sidereal clock, denoted as No. 4 in the Observatory, has been employed mainly in these observations. It is mounted to swing in the magnetic meridian, and is inclosed in a small chamber, with double doors, within the clock room, also closed by two doors.

The clock rate has a variation, depending upon temperature; but it is not possible to predict the change of rate with precision, since it may follow the change of temperature after a considerable interval; and deviations from other causes may often be quite large. The temperature coefficient will be found in Table VIII, with the intervals and rates upon which it depends. The value, there deduced, is a change of $+0^s.02$ in the rate of the clock correction, for $+1°$ change in temperature.

Within the clock chamber, opened but once a week, for winding, the variations of temperature are small, rarely exceeding 1° in a day; and they are usually progressive for periods of a week or more. The extreme annual range is from 41° to 78° Fahr., and the average is about 56°.

This clock has a gravity escapement. A wheel of thirty teeth, one of which has been cut out, touches a vertical double spring at intervals of two seconds, thus completing the electric circuit, for transmission of signals. The vertical spring can be adjusted in position, both vertically and horizontally, without disturbing the

clock train. The point of contact is jeweled. The clock first operates a relay, from which the break-circuit signals pass to the chronograph. The omission of the break, once a minute, is a decided convenience when the observing is done in a separate building.

There are two Dutch clocks, by HOHWÜ, with dead-beat escapements, in the same clock room, unprotected by special chambers. These have excellent performance, as shown by the daily comparisons. Neither has any sensible temperature rate. The pendulums break the circuit by means of a glass pin, at the rear of the rod, which raises a spring in the break-circuit arranged by Professor KEELER. In the break, invented and constructed by Mr. POOLE, for one of these clocks, the pin raises a slender wheel, by passing tangent to its rim, the wheel being very nearly counterbalanced first. In break-circuits of this character, it is necessary to use alternate signals, for observing and for clock comparisons, since consecutive breaks are rarely uniform in interval. The current is broken by a switch at the side, to record upon the chronograph any particular second.

One clock, No. 8, is mounted to swing in the magnetic meridian, while No. 3 swings in a plane at right angles to it. The last has, in general, exhibited the best performance of all three clocks; but this may be due to any one of a variety of causes.

(22) **Circle Readings.** Four microscopes have been used in all observations, and, with but very few exceptions, two divisions have been read at each microscope. The probable error of a circle reading, deduced by comparison of readings upon the two divisions, is $\pm 0''.07$. For a single pointing, the probable error may be adopted as $\pm 0''.2$.

For reducing the telescope bisections, the value of one revolution of the Declination micrometer, $48''.10$ ($\pm 0''.01$), has been used throughout. The separate determinations will be found in Table IX.

The setting of the telescope is made to the nearest $2'$ division, and it is rarely necessary to employ more than one and one half revolutions of the Declination micrometer.

(23) **Runs.** While the corrections for runs is very nearly eliminated in practice, its amount has been determined each night by use of all the observations. The corrections have been combined, for periods during which there was no sensible change; and the values will be found in Table IX. The correction, which has not exceeded $0''.1$ for the mean of four microscopes, has been applied throughout the reductions.

(24) **Flexure.** The correction for the horizontal flexure of this instrument is very small. The various determinations, made during the progress of this series of observations, are collected in Table IX.

The flexure 0″.1 sine Z. D. (±0″.02) has been adopted, and has been applied as a final correction to the observed results for Declination and Latitude. The correction decreases the observed zenith distances, and the effect of applying it is to decrease the observed latitude from south stars, and to increase that from north stars. Its effect upon declinations will depend upon the difference between the zenith distance of the star, and that of the equatorial zone of fundamental stars.

Later determinations, made in the year succeeding, indicate that the flexure is even less than has been here adopted.

The flexure of the circles has been derived from the readings made for division error. The sine term is already included in the determination of telescope flexure. The cosine term may be neglected, in view of its small differential effect, and of its elimination from the mean of observations made in both position.

The following were the values derived:

Circle A, fixed,	+0″.08 sin. (R — 315°)	+0″.04 cos. (R — 315°)
Circle B, movable,	+0 .02 sin. (R — 315°)	+0 .05 cos. (R — 315°)

Where R is the reading of either circle at the lower left hand microscope. The fixed circle reads 315°, when the telescope points to the zenith.

(25) **Refraction.** For the reduction of these observations, the Poulkova refraction constants have been employed. The reduction for the barometer has been taken from Vol. I, Publications of the Lick Observatory, page 232, where it has been tabulated for the low barometric readings of this altitude.

The barometer, Green 2839, is hung on the north wall of the observing room. It reads to one two-hundredth of an inch. Two thermometers, Green 9921 and 494, are hung in the air space between the walls, on the north side of the building. A shutter gives access to them. The first of the two thermometers has usually been taken for external temperature, and each has been sent to San Francisco, at intervals, to be compared with the standard of the Weather Bureau.

The use of these refractions for these observations appears to satisfy the B. J. Declinations at the Equator and the Pole.

BESSEL'S refractions are larger for the average conditions here: Bar. 25.7, temp. 53°, by the following differences:

At the Equator,	Z. D. 37° 20′	B.—P. +0″.11
77°.5 Decl. U. C.,	40°	B.—P. +0 .11
77°.5 Decl. L. C.,	65°	B.—P. +0 .30
—40°.0 Decl.,	77° 20′	B.—P. +0 .48

Poulkova = Bessel (0.9972).

In the comparison which follows, the aim is to exhibit the general effects of the use of the Poulkova refraction, and of BESSEL'S, for the present series of observations.

The mean of the observed declinations of the B. J. circumpolar stars is, for this series, in exact accord with the mean of the Ephemeris declinations. The use of BESSEL'S refraction would introduce a correction of —0″.1 to the last.

The latitude from equatorial stars differs from that obtained from the circumpolars, observed at both culminations, by +0″.13: a quantity which is satisfied by the bisection correction, derived from an independent source. The use of BESSEL'S refractions would increase this difference by 0″.2.

The $\Delta\delta$ (U. C. — L. C.), in the observations of circumpolar stars, is +0″.20. The use of BESSEL'S refraction would increase this $\Delta\delta$, 0″.6.

The observed declinations of stars not in B. J., at the southern limit, —40°, would receive a correction of nearly —0″.4, if reduced with BESSEL'S refraction. The observed places have now large negative corrections, to the Ephemeris places of 303, and N. A. 1897. These corrections would be increased by the use of a larger refraction constant.

In this connection, the Ephemeris comparison, in Tables XVIII and XIX, may be consulted.

(26) **The Nadir.** The determination of the zenith point, by nadir readings, has been made usually three times each night. The changes are in general small, but sometimes amount to 1″ in four or five hours. A rate has not been adopted, unless confirmed by the observed equator points; and only when the change is progressive, and amounts to 0″.4 in the course of the night. The average change, between successive nights, which may be widely separated, is ±0″.6, and the largest recorded change is 2″.8.

An observation consists of three or four double readings, for coincidence of the movable thread with its image; the circle reading being made when half the series has been completed. The probable error of a single determination has been derived, by comparison of the three values, upon all nights when a rate was not adopted; and is thus found to be ±0″.18. This includes changes, too small to be

allowed for by the use of a rate; when a rate has been included, the residuals are commonly very small.

The observation has been made, thus far, facing south.

The nadirs have been used to derive a value of the latitude, which depends upon B. J. Declinations. The tabulation of these latitude results furnishes the material necessary to reduce all Declinations, as observed, to a system based upon the circumpolar stars. The process is direct and simple, as is evident from the explanation which accompanies Table XXIII.

The results of observation may also be used to obtain Declinations, which shall depend upon the mean observed latitude; and, similarly, upon the normal latitude, φ_o.

(27) **Graduation Error.** The errors of the 1° divisions of the fixed circle, A, used in this series of observations, and of the 3° divisions of the movable circle, B, have been measured. The corrections are given in Table X, with an explanation of the method and of the details. These measurements should serve as the basis for further determinations.

For those measured, the average graduation error, for the mean of four microscopes, is ±0".18 for circle A, and ±0".15 for circle B.

The probable error of a reading upon the four divisions of the fixed circle, due to graduation, may be adopted as ±0".15, derived by treating the measured values as residuals. There is some evidence of periodic character in the errors, and it may be assumed, in the absence of further data, that the probable error due to errors of graduation is not diminished by reading upon two adjoining divisions under each microscope.

The probable error of the measurement increases from ±0".01, for the divisions best determined, to ±0".04 for the intermediate 1° arcs.

No corrections for division error have been applied in this series of observations; but the knowledge of the amount of error, due to this source, is not without value. The largest error measured is 0".7, for the mean of four divisions.

(28) **The Reductions.** The first steps of the reductions have always promptly followed the observing. The chronograph sheets are read, the means of transits and of microscopes taken, and approximate instrumental corrections derived, on the morning following, as a rule. Transits and circle readings for the same star are compared, for the various observations, as a check upon mistakes of identification, and of observation.

In proceeding, later, for the final reduction, the individual transit threads are first reduced to the center thread, V. The mean of the separate threads is a

check upon the original mean, with its correction. It has been necessary to employ methods, that will furnish a check upon the various stages of reduction; since there has been no computor, to check the work independently.

Large residuals are at once noted, and the original chronograph reading is looked up. Threads have very rarely been rejected, unless some note has been made at the time of observing; and, usually, not unless the residual is of $0^s.2$ sec. δ. It is probable that an observer will sometimes be aware that a thread may have been recorded too early, or too late. The effect is likely to be that he will swing slightly to the other side, for some of the subsequent threads. There will, consequently, appear some residuals larger than usual; but the mean of all will be more nearly exact, than if any thread were to be rejected, for reason of its residual. Whenever a thread is, consciously, unsatisfactory, a note at the time of observation insures its rejection, without regard to the residual.

Collimation and level corrections having been applied, the azimuth is derived from the B. J. circumpolar pairs. After the derivation of ΔT, this is then applied to each north star, and the separate values of a, thus obtained, serve as a check, and as an indication of systematic errors.

The clock correction, and its rate, are derived from the list of B. J. equatorial stars. This correction is applied to all transits, and thus the Right Ascensions, first obtained, for the fundamental stars, are affected by the use of the Ephemeris places. But a reduction can be applied, for each night, to each star, to reduce the place to the mean of the remaining stars, usually seven in number. Since the observing has included eight fundamentals per night, with but few exceptions, the reduction of a star, used as fundamental, to the mean of the other fundamentals, can be as well applied to the final mean of the observations, both in R. A. and Decl. There is rarely any noticeable difference between the hourly rate, determined from the observations of a full night, and that given by the daily rate of the clock. Ordinarily the rate of the night shows a larger gaining rate for the clock. The probable error of a clock correction, from one star, is $\pm 0^s.027$. The apparent Right Ascensions and Declinations of the B. J. stars are interpolated, rigorously, from the Ephemeris, with the addition of the nutation terms of short period. Since the interpolations are carried to one more place of decimals, than given in the ten day Ephemeris, there may be, in any case, an error of 5 in the last place used. For the mean, the effect will probably be inconsiderable. The Right Ascensions of stars above 70° have been taken out to two places only.

The full number of decimals, three in R. A. and two in Decl., have been carried through the computations, and to the final results. This prevents the accumulation of small residual errors in reduction, which might change the preceding decimal place by a unit, in the course of several processes.

The B. J. proper motions are included in the apparent places, and in the reduction from one year to another. For stars not in B. J. no proper motion has been used in the reductions. The Independent Day Numbers of the B. J. have been used, in the reduction to mean place; and the nutation terms of short period have been computed, and are included. The reduction has been computed for each observation, since the comparison furnishes a check upon mistakes of computation; and the Ephemeris difference, between mean and apparent place, is used as a further check.

In the final places, when they are compared with the Ephemerides, Tables XVI to XIX, the reduction for proper motion, taken from the corresponding Ephemeris, has been included.

In the Declination reductions, the circle readings are first checked, by taking the mean of the two divisions for each microscope, and then the mean of the four; while the first process was, to take the mean of the corresponding divisions for the four. The difference of each microscope from the mean of four is taken out, and a running comparison checks, effectively, the presence of a 5″ or 10″ error.

Further, the difference of the sums of opposite microscopes is a constant, unaffected by eccentricity, and furnishes a last check upon all readings. Upon transferring to the reduction sheets, the micrometer correction is checked.

The app. z. d., used in the refraction computation, is the direct difference between the circle reading of the nadir, and of the star. The refractions for two nights are compared, star by star, and, with the generally uniform conditions prevailing here, no mistakes of any importance are likely to escape notice.

The bisection in zenith distance has, almost invariably, been made at the center transit thread; and if at one of the side threads, the reduction has been computed. For Polaris, occasionally, two and three bisections have been made.

With refraction, and runs correction applied, an equator point is derived from each B. J. star; and an observed value of the latitude, by combination with the nadir. For the reduction of the Declinations, the equator point, derived from the list of B. J. equatorial stars, has been employed. A rate in this reading has been adopted only when progressive, and when confirmed by the nadirs. Thus the rate has been, essentially, attributed to instrumental change; and errors due to imperfect refraction, and to the Ephemeris Declinations, are included in the accidental deviations.

The probable error of an equator point, from the observation of one star, has been derived by the comparison of nights upon which no rate was adopted, and is ±0″.32.

In the Details by nights will be found the transits and circle readings, with the subsequent corrections, and the data upon which they depend.

Following that section of the volume, are the Results for each star, with Ephemeris place, and the comparison with observation.

(29) **Systematic Corrections.** The discussion of the Results of observation, which will be found in detail later on, Table XX, affords material for the derivation of certain systematic corrections.

In Right Ascension, the observations of the circumpolar stars of B. J. unite in giving a correction to B. J., which, on the average, amounts to —0^s.009 sec. δ.

This may be due to systematic error of observation, for slow moving stars. There is no difference between determinations made at the two culminations; from which the inference is, that there is no correction due to direction of motion, nor to the application of erroneous instrumental corrections, unless these balance in effect. By reducing the circumpolar transits, so as to obtain a value of the azimuth error from each star, the effect is noticeable. It is eliminated from the mean of determinations of a, derived from opposite culminations of two stars of the same Declination. No correction has been applied to the observed places, depending upon this difference.

The mean difference between determinations, in the two positions of the instrument, for stars not in B. J. is (E—W) —0^s.002 sec. δ. It is probable that whatever systematic error is included will be distributed between the two determinations, and that it will be eliminated from the mean. The difference, (E—W), will be found tabulated, for stars not in B. J., in Table XXI; with discussion of the probable error, following in Table XXII. Right Ascension, and Declination results are included in these tables.

The determinations of Declination must include the errors of the system of fundamental stars. There are various checks upon the system of Declinations.

In the determination of circumpolar stars, at both culminations, we have a test of the mean error of the fundamental system; and the difference will include the effect of systematic errors of observation, of which that due to refraction forms part. The difference (U. C.—L. C.), for 47 stars, as exhibited in detail in Table XX, is +0".20 (±".03). This difference includes double the mean error of the fundamental system, plus the effect of systematic errors of determination. It is almost precisely satisfied by the bisection error, obtained from an independent source, and which enters here with quadruple effect.

If the systematic errors in Declination of the fundamental system vary with the sine R. A., their full effect should be exhibited in the differences for stars in all Right Ascensions, since these are made up of the *difference* of the errors of opposite quadrants. The various stars, however, give residuals but little larger than are to be expected from the accidental errors of observation.

The determinations of the B. J. circumpolar Declinations are independent of the Ephemeris places of these stars, except for the inclusion of B. J. proper motions. The average correction to B. J., for 45 stars, is less than 0″.01.

In reducing the observations of B. J. circumpolar stars, one half the Δ (U. C.—L. C.) has been applied, as a final correction, for those observed at one culmination only, thirteen in number. It is possible that a similar correction should be applied to the Declinations of 13 stars, between the zenith and 70° Decl., for which the places are given in the list of stars not in B. J. All stars above 70° Declination, not in B. J., have been observed at both culminations: and if the Δ (U. C.—L. C.) is to be ascribed to bisection error, it will be eliminated from the mean of both culminations; and from the determination of all stars south of the zenith.

For the mean of 32 B. J. stars, observed at both culminations, the observed correction to the B. J. Declinations is +0″.01.

The observed values of latitude are a further test of the B. J. Declinations. They are given, in detail, in Tables XXIII to XXVI. The general results may be reviewed here.

The latitudes, derived from circumpolar stars, are systematically smaller than those from equatorial stars. This may be due to systematic error of observation: and, in fact, the bisection correction, determined from observation of stars at the zenith, nearly satisfies this difference, into which it enters with double effect. From all observations of B. J. stars the mean values of φ, uncorrected for latitude variation, are as follows:

36 stars at U. C.,	φ 25″.49
41 " " L. C.,	25 .49
32 " " both culminations,	25 .52
86 Equatorial stars,	25 .65
22 stars at the Zenith,	25 .77

The error of the Ephemeris Declination is eliminated from the mean of observations of the same star, at both culminations. The comparison of both culminations, for the same star, indicates a mean correction, to the B. J. places for these 32 stars, of +0″.03. The difference, 0″.13, between the value from circumpolars at both culminations, and that from the equatorial stars, includes the mean error of this last, and the systematic errors of observation. The application of the bisection correction would leave no sensible error to be traced to refraction, or to other sources. The B. J. Declinations appear to be quite exactly satisfied, at the Pole and Equator, by this series of observations.

in observing habit, I have never permitted myself to be conscious of the direction in which such an error would operate, in the telescope bisection. But it is possible that the effect of making observations for this purpose, with the knowledge which early reductions could not fail to give, of a difference between latitude results from north and south stars, have combined to direct attention specially toward this feature of observing, with an actual improvement in habit as a result. Certainly so small a correction would not be appreciable, under the usual conditions of observation; and an attempt to allow for it would probably end in swinging to the other side.

The mean value of $\frac{1}{2}\Delta\varphi$, from the entire series, is $+0''.06$ ($\pm 0''.02$); the probable error of a single determination being $\pm 0''.12$.

In application, it will decrease the observed zenith distances; thus diminishing the observed latitude from south stars, and increasing that from north stars, at either culmination. The Declinations, as here determined, for stars south of the zenith will not be affected, if the correction be assumed as constant at all zenith distances. On the same assumption the observed Declinations at U. C. should be decreased by double the bisection error, $0''.12$; those at L. C. should be correspondingly increased, and the effect is eliminated from the mean.

For the observed Declination of B. J. stars at the zenith, which have been reduced with the equatorial fundamental stars, one half the double correction, $-0''.06$, would be required.

There remain 13 stars not in B. J. for which this correction should, possibly, be applied. They are between the zenith and 70°, and the Declinations would be decreased by double the bisection error, $0''.12$.

These corrections have not been applied, as derived from this source. The final systematic correction, applied to B. J. circumpolar stars observed at one culmination only, depends upon the comparison of 47 stars, observed at both; and appears to be a consistent term.

(32) **The Latitude.** Reference may be made to Table XXIII, in which are presented the detailed observation of φ, and the reduction to φ_0. The mean value, derived from equatorial and circumpolar stars, should be but slightly affected by systematic errors of observation, such as depend upon flexure, bisection, and refraction. The value of φ_0, deduced from these observations, of which the mean epoch is 1895.1, is $37^\circ\ 20'\ 25''.57$ ($\pm 0''.01$). This depends upon about 1000 observations of B. J. circumpolar stars, and about 1400 of equatorial stars, upon 162 nights. The zenith stars would slightly increase this value, if given their proportional weight, for 160 observations. In all, over 150 B. J. stars have been observed, and the error of the mean, due to accidental errors of Declination, of

graduation, and finally of observation, should be small. From this series of observations:

$$\varphi_0 = 37^\circ\ 20'\ 25''.6$$

(33) **Probable Error.** The purely accidental error of observation will always be somewhat obscured, in the various sources of error which affect the results of observation.

For determining the probable error of the final place, the comparison of results in both positions of the instrument is the best criterion; while the comparison of individual determinations, with the mean of four in the same position, gives more closely the accidental error of observation.

Results by both methods are given in detail in Table XXII. Observations of the stars not in B. J. are included, only, as these have a uniform number of observations, and are independent of the determination of fundamental constants of reduction.

By comparison of the determinations made in the two positions, and without making any allowance for systematic differences, the probable errors of the mean of four observations, in one position, are:

Right Ascension,	$\pm 0^s.013$ sec. δ up to 70° Decl.
	$\pm 0\ .009$ " for circumpolars.
Average,	$\pm 0\ .012$ "
Declination,	$\pm 0''.15$ at the Equator.
	$\pm 0\ .30$ at zenith distance 77°.
Average,	$\pm 0\ .19$

The resulting probable errors of the final place, depending upon four observations in each position, would be:

Right Ascension,	$\pm 0^s.009$ sec. δ up to 70° Decl.
Circumpolars,	$\pm 0\ .004$ both culminations.
Declination,	$\pm 0''.11$ at the Equator.
	$\pm 0\ .21$ at zenith distance 77°.
Average,	$\pm 0\ .13$
Circumpolars,	$\pm 0\ .10$ both culminations.

The circumpolar values are confirmed by the comparison, independently, of the results at the two culminations for the same star.

Graduation error is included in the probable error of Declination above.

For the probable error of one observation, by comparison of separate determinations with the mean of four, there results:

Right Ascension, $\pm 0^s.019$ sec. δ up to 70° Decl.
± 0.016 " for circumpolars.
Declination, $\pm 0''.20$ at the Equator.
± 0.42 at zenith distance 77°.
Average, ± 0.26
U. C., ± 0.27 L. C., $\pm 0''.33$

The effect of graduation error is not included in this comparison.

The probable error of Declination, for the mean of four observations in one position, can be pretty exactly represented by the p. e. of observation (accidental), combined with the p. e. of graduation, which is a satisfactory confirmation of the separate sources of error. Thus, p. e. of graduation $(15)^2$ combined with p. e. of observation $(13)^2$ gives p. e. $\pm 0''.20$ for the mean of four observations.

To these may be appended, the probable errors for the various reduction constants.

P. E. one determination of collimation, $\pm 0^s.003$
P. E. one determination of level, ± 0.005; night, $\pm 0^s.003$
P. E. azimuth from one pair, ± 0.018; night, ± 0.011
P. E. one determination ΔT, ± 0.027; night, ± 0.010

The probable error of one ΔT may be divided into: p. e. R. A. $\pm 0^s.019$, and p. e. Obs. $\pm 0^s.019$.

P. E. graduation, mean of four divisions, $\pm 0''.15$
P. E. one determination of flexure, ± 0.11
P. E. circle reading, ± 0.07
P. E. one nadir, ± 0.18; night, $\pm 0''.11$
P. E. one determination of equator point, ± 0.32; night, ± 0.11

The probable error of an equator point may be distributed: p. e. Decl. $\pm 0''.20$, and p. e. Obs. $\pm 0''.25$. This last may be again divided: p. e. graduation $\pm 0''.15$, and p. e. observation $\pm 0''.20$. The probable errors of a B. J. place may be adopted as $\pm 0^s.02$ and $\pm 0''.2$.

(34) **Ephemeris Comparison.** This introduction may be closed with the comparison, between the systematic Ephemeris differences for the fundamental stars, and the observed corrections to the Ephemerides, for stars not in B. J. The details are given in the respective tables, from which the mean results are taken.

Table I.—Fundamental Stars.			Table XVI.—Stars not in B. J.		
B. J.—A. E.,	—0^s.026	+0″.05	Obs.—A. E.,	—0^s.028	+0″.02
B. J.—C. T.,	+0 .015	—0 .22	Obs.—C. T.,	+0 .016	—0 .24
B. J.—N. A.,	+0 .021	+0 .18	Obs.—N. A.,	+0 .008	+0 .02
			Obs.—N. A. '97,	+0 .025	—0 .71 (—30°)
B. J.—303,	0 .000	—0 .51	Obs.—303,	+0 .013	—0 .75 (—14°)

The evidence appears to be substantial, of the consistency of each system with its zone of equatorial stars, and also of the extension, by these observations, of the B. J. system at the Equator, to the limits included in the series.

R. H. TUCKER.

May, 1897.

TABLE I.—FUNDAMENTAL STARS.

The B. J. positions of the 86 equatorial stars, used as fundamental, are given in the following table, for 1895.0.

The differences between the B. J. places and those of the other Ephemerides, for the individual stars, are included, with the mean difference, and the average residual from that mean.

It is not proposed here to make any adjustment for these differences, but simply to present the comparison between the various systems, for the restricted list which has actually been employed as fundamental, in the present series of observations:

TABLE I.—COMPARISON OF THE B. J. PLACES OF FUNDAMENTAL STARS WITH OTHER EPHEMERIDES.

STAR.	R. A. 1895.0.	Decl. 1895.0.	B. J. — A. E.		B. J. — C. T.		B. J. — N. A.		B. J. — 303.	
	h m s	° ′ ″	*s*	″	*s*	″	*s*	″	*s*	″
γ Pegasi . .	0 7 49.695	+14 35 59.17	−.013	+0.01	+.07	0.0	+.041	+0.37	. .	. .
12 Ceti . . .	0 24 40.807	− 4 32 15.27	+.013	−0.48	+.10	−1.1	+.049	+0.15	+.001	−0.57
ε Piscium . .	0 57 29.570	+ 7 19 29.50	−.015	+0.37	−.06	+0.8	+.024	+0.69	. .	. .
9 Ceti . . .	1 18 46.492	− 8 43 30.87	+.017	−0.03	+.06	−0.4	+.064	+0.12	+.012	−0.40
ν Piscium . .	1 35 57.954	+ 4 57 22.23	−.047	−0.01	+.06	−0.1	+.024	−0 01	+.003	0.00
ξ Piscium . .	1 48 7.143	+ 2 40 8.53	. .	. .	. .	. .	. .	. .	+.014	−0.32
ο Ceti . . .	2 14 2.457	− 3 27 17.05	. .	. .	−.07	−1.1	. .	. .	−.012	−1.10
ξ 2 Ceti . . .	2 22 34.519	+ 7 59 21.44	−.040	+0.27	+.06	−0.1	+.032	+0.10	. .	. .
δ Ceti . . .	2 34 6.010	− 0 7 29.17	−.024	+0.03	. .	. .	. .	. .	+.025	−0.96
η Eridani . .	2 51 17.840	− 9 18 58.43	. .	. .	. .	. .	. .	. .	+.013	−0.49
α Ceti . . .	2 56 47.354	+ 3 40 39.43	−.039	+0.09	.00	+0.4	+.008	+0.02	−.005	−0.55
ο Tauri . . .	3 19 9.725	+ 8 39 32.90	. .	. .	. .	. .	+.046	+0.23	. .	. .
ε Eridani . .	3 27 58.961	− 9 48 50.68	−.018	(−1.60)	−.09	+1.3	+.021	−0.16	−.020	−0.92
ν Tauri . . .	3 57 34.222	+ 5 41 51.55	. .	. .	. .	. .	. .	. .	+.023	−0.76
ο 1 Eridani. .	4 6 44.389	− 7 6 41.71	+.003	+0.27	. .	. .	+.080	+0.74	+.027	−0.03
ν Eridani . .	4 31 4.271	− 3 34 2.39	. .	. .	. .	. .	. .	. .	−.019	−0.15
μ Eridani . .	4 40 15.082	− 3 26 50.52	. .	. .	. .	. .	+.012	+0.37	−.009	−0.35
π 5 Orionis . .	4 48 46.906	+ 2 16 6.19	. .	. .	. .	. .	. .	. .	+.017	−0.97
β Eridani . .	5 2 41.246	− 5 13 20.50	−.012	−0.02	. .	. .	. .	. .	+.002	−0.06
β Orionis . .	5 9 29.460	− 8 19 23.76	−.024	−0.28	−.01	0.0	+.002	−0.08	+.038	−1.08
γ Orionis . .	5 19 29.900	+ 6 15 15.21	. .	. .	−.11	−0.4	. .	. .	. .	. .
ε Orionis . .	5 30 53.066	− 1 16 9.22	−.039	+0.02	−.04	+0.6	+.004	−0.26	−.022	−0.66
κ Orionis . .	5 42 46.537	− 9 42 25.86	−.028	0.00	. .	. .	−.008	+0.46	−.003	−0.64
ν Orionis . .	6 1 34.605	+14 46 50.71	−.076	+0.35	−.02	−0.1	+.046	+0.08	. .	. .
8 Monocerotis.	6 18 12.278	+ 4 38 45.04	. .	. .	. .	. .	. .	. .	. .	. .
S Monocerotis.	6 35 11.742	+ 9 59 33.16	. .	. .	. .	. .	. .	. .	. .	. .
18 Monocerotis.	6 42 23.157	+ 2 31 36.06	. .	. .	. .	. .	. .	. .	+.012	−0.75
λ Geminorum .	7 12 3.537	+16 43 46.54	. .	. .	. .	. .	. .	. .	. .	. .
β Canis Min. .	7 21 27.406	+ 8 30 2.55	−.046	+0.49	+.01	−0.1	+.032	+0.44	. .	. .
25 Monocerotis.	7 32 3.341	− 3 52 36.43	. .	. .	. .	. .	. .	. .	(−.116)	−0.65
β Cancri . . .	8 10 49.261	+ 9 30 32.15	−.011	+0.41	−.03	0.0	+.035	+0.33	. .	. .
Br. 1197 . . .	8 20 24.809	− 3 33 50.31	−.013	0.00	. .	. .	. .	. .	−.021	−0.42
ε Hydrae . .	8 41 12.950	+ 6 48 14.29	−.027	+0.49	−.04	0.0	+.017	+0.37	. .	. .
α Cancri . . .	8 52 44.677	+12 15 50.49	. .	. .	+.02	+0.2	−.031	+0.28	. .	. .
9 Hydrae . .	9 8 54.097	+ 2 45 25.43	−.042	+0.16	. .	. .	. .	. .	+.015	−0.71
ο Leonis. . .	9 35 32.831	+10 22 11.73	+.015	+0.28	+.09	−0.1	+.034	+0.41	. .	. .
6 Sextantis. .	9 45 56.602	− 3 45 4.92	. .	. .	. .	. .	. .	. .	+.036	−0.53
π Leonis. . .	9 54 39.887	+ 8 32 52.41	−.012	+0.11	−.04	+0.4	+.015	+0.57	. .	. .
1 Leonis. . .	10 43 44.311	+11 6 2.50	−.025	−0.04	+.05	−0.6	+.046	−0.08	. .	. .
χ Leonis. . .	10 59 36.025	+ 7 54 13.27	. .	. .	.00	+0.8	−.022	+0.48	. .	. .
σ Leonis. . .	11 15 43.347	+ 6 36 17.02	. .	. .	. .	. .	. .	. .	. .	. .

Star.	R. A. 1895.0.	Decl. 1895.0.	B. J. — A. E.		B. J. — C. T.		B. J. — N. A.		B. J. — 303.	
	h m s	° ′ ″	*s*	″	*s*	″	*s*	″	*s*	″
υ Leonis . .	11 31 34.328	− 0 14 38.62	−.031	+0.29	+.03	+0.8	+.018	+0.15	. .	. .
β Virginis . .	11 45 13.510	+ 2 21 23.00	. .	. .	−.02	+0.8	. .	. .	−.006	−0.48
ο Virginis . .	11 59 51.639	+ 9 18 58.10	+.012	+0.04	−.03	+0.4	. .	. .	. .	. .
η Virginis . .	12 14 32.000	− 0 5 0.25	−.043	−0.13	+.02	−0.2	+.029	−0.52	.000	−0.47
γ Virginis m. .	12 36 20.365	− 0 52 24.93	−.037	+0.52	. .	. .	. .	. .	. .	. .
δ Virginis . .	12 50 18.803	+ 3 58 5.19	. .	. .	−.05	+0.8	.000	+0.30	+.003	−0.10
ε Virginis . .	12 56 57.004	+11 31 24.65	−.039	+0.10	. .	. .	+.034	+0.21	. .	. .
9 Virginis . .	13 4 30.735	− 4 58 42.20	−.021	+0.26	−.01	+0.2	−.012	+0.55	−.011	−0.25
ζ Virginis . .	13 29 20.517	− 0 3 32.19	−.025	+0.29	−.02	−0.7	+.016	−0.07	+.006	−0.42
τ Virginis . .	13 56 18.110	+ 2 3 8.99	. .	. .	+.01	0.0	+.021	−0.81	−.006	−1.19
ι Virginis . .	14 10 30.418	− 5 29 58.08	. .	. .	. .	. .	. .	. .	−.022	−0.37
φ Virginis . .	14 22 47.490	− 1 45 26.01	. .	. .	. .	. .	. .	. .	+.009	−0.62
μ Virginis . .	14 37 31.537	− 5 12 5.78	. .	. .	. .	. .	. .	. .	−.007	−0.43
P. XIV 221 . .	14 51 15.886	+14 52 15.20	. .	. .	. .	. .	. .	. .	. .	. .
β Librae . . .	15 11 21.349	− 8 59 43.40	−.016	+0.11	+.01	−0.7	+.028	+0.13	+.010	−0.56
α Serpentis . .	15 39 5.721	+ 6 45 21.80	−.025	+0.28	+.03	−0.7	+.036	−0.06	. .	. .
ε Serpentis . .	15 45 34.850	+ 4 47 37.79	−.055	−0.50	. .	. .	+.013	−0.26	−.013	−0.29
δ Ophiuchi . .	16 8 50.522	− 3 25 25.69	−.040	−0.05	+.03	−1.3	+.032	+0.04	.000	−0.51
ζ Ophiuchi . .	16 31 22.564	−10 21 15.31	−.035	−0.03	. .	. .	+.028	+0.04	+.011	−0.62
κ Ophiuchi . .	16 52 41.842	+ 9 32 18.62	−.051	+0.17	+.06	−1.0	+.018	+0.83	. .	. .
α Herculis . .	17 9 51.553	+14 30 36.09	−.020	−0.38	+.04	−1.1	+.028	−0.14	. .	. .
α Ophiuchi . .	17 30 3.589	+12 38 11.80	−.025	+0.15	+.06	−0.9	+.017	+0.39	. .	. .
β Ophiuchi . .	17 38 17.089	+ 4 36 40.93	. .	. .	+.10	−0.9	+.017	+0.54	−.007	−0.12
ν Ophiuchi . .	17 53 14.728	− 9 45 36.79	. .	. .	−.01	+0.4	. .	. .	+.005	+0.13
72 Ophiuchi . .	18 2 22.264	+ 9 32 56.64	. .	. .	. .	. .	+.010	+0.52	. .	. .
η Serpentis . .	18 15 52.540	− 2 55 32.77	−.048	−0.63	−.03	−1.1	+.007	+0.49	−.023	−0.23
λ Aquilae . .	19 0 40.560	− 5 2 23.45	. .	. .	+.01	−1.1	. .	. .	−.021	−0.80
ω Aquilae . .	19 12 53.264	+11 24 22.30	. .	. .	+.08	−0.7	+.031	+0.43	. .	. .
δ Aquilae . .	19 20 12.238	+ 2 54 19.85	−.016	−0.16	+.08	−1.0	+.036	−0.27	+.005	−0.78
γ Aquilae . .	19 41 16.044	+10 21 26.98	−.027	+0.09	+.05	−0.8	+.019	+0.54	. .	. .
β Aquilae . .	19 50 9.301	+ 6 8 40.65	−.036	+0.34	+.04	−0.3	+.043	−0.21	. .	. .
9 Aquilae . .	20 5 53.189	− 1 7 58.23	−.017	+0.14	+.03	−0.6	+.006	−0.40	−.018	−0.31
ε Delphini . .	20 28 11.783	+10 56 47.13	−.044	−0.57	. .	. .	+.023	+0.54	. .	. .
ε Aquarii . .	20 41 59.511	− 9 52 48.44	. .	. .	. .	. .	+.004	−0.07	−.002	−0.68
α Equulei . .	21 10 34.481	+ 4 48 49.72	. .	. .	. .	. .	. .	. .	−.003	−0.41
ε Pegasi . . .	21 39 1.732	+ 9 23 37.18	−.027	+0.09	.00	−0.6	+.032	+0.47	. .	. .
20 Pegasi . . .	21 55 58.443	+12 37 0.75	. .	. .	. .	. .	. .	. .	. .	. .
9 Aquarii . .	22 11 17.593	− 8 18 21.94	−.003	−0.02	+.05	−0.4	+.038	+0.28	+.026	−0.48
γ Aquarii . .	22 16 13.961	− 1 54 59.09	−.004	+0.02	−.02	−0.5	+.009	−0.06	−.006	−0.33
λ Aquarii . .	22 47 8.171	− 8 8 18.25	−.063	−0.55	+.13	−0.8	−.002	−0.05	−.006	−0.80
α Pegasi . . .	22 59 31.791	+14 38 25.29	−.030	+0.33	+.05	−0.5	+.007	+0.49	. .	. .
γ Piscium . .	23 11 43.282	+ 2 42 30.71	. .	. .	+.04	+0.4	+.002	+0.20	+.006	−0.34
κ Piscium . .	23 21 32.952	+ 0 40 50.53	. .	. .	−.04	+0.3	−.001	+0.19	−.030	−0.53
ι Piscium . .	23 34 32.942	+ 5 3 25.44	−.034	−0.38	−.01	−0.4	+.032	−0.09	+.008	−0.43
ω Piscium . .	23 53 55.122	+ 6 16 55.21	−.042	+0.13	+.05	+0.1	+.028	+0.36	. .	. .

Mean Δ B. J.—A. E., 50 stars (1 om.), −ˢ.026 +0″.05
Average residual *v* from mean Δ, ± .015 ±0 .21

Mean Δ B. J.—C. T., 53 stars. +ˢ.015 −0″.22
Average residual *v* from mean Δ, ± .04 ±0 .5

Mean Δ B. J.—N. A., 57 stars, +ˢ.021 +0″.18
Average residual *v* from mean Δ, ± .015 ±0 .27

Mean Δ B. J.—303, 49 stars (1 om.), ˢ.000 −0″.51
Average residual *v* from mean Δ, ± .013 ±0 .22

In Table II, the differences for the individual stars have been combined in groups, extending through 2 hours of Right Ascension, to better present the effect of systematic differences. The same stars are included, one comparison with A. E. being omitted, and one from that with 303.

TABLE II.—EPHEMERIS DIFFERENCES, IN ORDER OF RIGHT ASCENSION. GROUPS OF 2 HOURS.

B. J.—A. E.					B. J.—C. T.					B. J.—N. A.					B. J.—303.				
α	δ	*No.*	$\Delta\alpha$	$\Delta\delta$	α	δ	*No.*	$\Delta\alpha$	$\Delta\delta$	α	δ	*No.*	$\Delta\alpha$	$\Delta\alpha$	α	δ	*No.*	$\Delta\alpha$	$\Delta\delta$
h	°		*s*	″	*h*	°		*s*	″	*h*	°		*s*	″	*h*	°		*s*	″
0.9	+2.7	5	−.009	−.03	1.0	+2.7	5	+.046	−.16	0.9	+2.7	5	+.040	+.26	1.3	−1.4	4	+.007	−.40
2.6	+3.9	3	−.035	+.13	2.7	−0.4	4	−.025	+.12	3.0	+2.6	4	+.027	+.05	3.0	−2.2	6	+.004	−.80
5.1	−6.3	5	−.020	.00	5.3	−1.1	3	−.053	+.07	5.0	−6.0	5	+.018	+.25	4.9	−4.5	8	+.009	−.49
6.7	+11.6	2	−.061	+.42	6.7	+11.6	2	−.005	−.10	6.7	+11.6	2	+.039	+.26	6.7	+2.5	1	+.012	−.75
9.0	+5.7	6	−.018	+.24	9.1	+9.5	5	.000	+.10	9.1	+9.5	5	+.014	+.39	9.1	−1.5	3	+.010	−.62
11.4	+6.7	3	−.015	+.10	11.4	+6.1	5	+.006	+.44	11.1	+6.3	3	+.014	+.18	11.8	+2.4	1	−.006	−.48
12.9	+1.1	5	−.033	+.21	13.1	+0.2	5	−.010	+.02	13.1	+2.1	6	+.015	−.06	13.1	+0.2	5	−.002	−.49
15.5	+0.9	3	−.032	−.04	15.4	−1.1	2	+.020	−.70	15.6	+0.9	3	+.026	−.06	14.8	−3.3	5	−.005	−.45
16.8	+4.6	5	−.034	−.03	17.2	+4.7	6	+.047	−.80	17.0	+4.6	6	+.023	+.28	17.0	−4.7	4	+.002	−.28
19.3	+4.1	4	−.032	−.09	19.2	+3.8	6	+.038	−.83	19.1	+6.2	6	+.023	+.25	18.9	−1.7	3	−.013	−.60
20.8	+6.4	3	−.029	−.11	20.9	+4.1	2	+.015	−.60	20.8	+2.3	4	+.016	+.13	20.7	−2.1	3	−.008	−.47
23.0	+1.3	6	−.029	−.07	23.0	+1.4	8	+.031	−.22	23.1	+2.4	8	+.009	+.13	22.9	−1.6	6	.000	−.48
			s	″				*s*	″				*s*	″				*s*	″
Mean Δ			−.029	+.06	Mean Δ			+.009	−.22	Mean Δ			+.022	+.17	Mean Δ			+.001	−.53
	v		±.009	±.13		v		±.024	±.34		v		±.008	±.11		v		±.006	±.11

The deviations of the groups from the mean are not, in general, much larger than is to be expected from the combination of the individual differences. But the dependence upon Right Ascension can be traced, in some of the comparisons.

This will be exhibited more clearly in the combination into groups of 6 hours, which follows. The variations in the quadrants would be more strongly marked, in some cases, by beginning the grouping at 2^h R. A.

TABLE III.—EPHEMERIS DIFFERENCES, IN GROUPS OF 6 HOURS RIGHT ASCENSION.

B. J.—A. E.					B. J.—C. T.					B. J.—N. A.					B. J.—303.				
α	δ	*No.*	$\Delta\alpha$	$\Delta\delta$	α	δ	*No.*	$\Delta\alpha$	$\Delta\delta$	α	δ	*No.*	$\Delta\alpha$	$\Delta\delta$	α	δ	*No.*	$\Delta\alpha$	$\Delta\delta$
h	°		*s*	″	*h*	°		*s*	″	*h*	°		*s*	″	*h*	°		*s*	″
2.8	−0.5	13	−.018	+.02	2.6	+0.7	12	−.002	−.01	3.0	−0.4	14	+.028	+.20	2.9	−3.0	18	+.007	−.57
9.2	+7.0	11	−.025	+.23	9.7	+8.4	12	+.002	+.21	9.2	+9.0	10	+.019	+.30	9.2	+0.1	5	+.007	−.62
15.0	+2.4	13	−.033	+.06	15.3	+2.1	13	+.021	−.47	15.2	+2.9	15	+.020	+.08	14.8	−2.4	14	−.002	−.42
21.3	+3.3	13	−.030	−.09	21.3	+2.7	16	+.032	−.50	21.3	+3.6	18	+.015	+.17	21.3	−1.8	12	−.005	−.51
			s	″				*s*	″				*s*	″				*s*	″
Mean Δ			−.026	+.05	Mean Δ			+.013	−.19	Mean Δ			+.021	+.19	Mean Δ			+.002	−.53
	v		±.005	±.09		v		±.013	±.29		v		±.004	±.06		v		±.005	±.06

Since the distribution of the stars is not uniform, with respect to both coördinates, they should also be compared with respect to Declination. In the following Table IV, the same material has been combined in groups of 5°.

TABLE IV.—EPHEMERIS DIFFERENCES, IN GROUPS OF 5° DECLINATION.

B. J.—A. E.					B. J.—C. T.					B. J.—N. A.					B. J.—303.				
α	δ	*No.*	$\Delta\alpha$	$\Delta\delta$	α	δ	*No.*	$\Delta\alpha$	$\Delta\delta$	α	δ	*No.*	$\Delta\alpha$	$\Delta\delta$	α	δ	*No.*	$\Delta\alpha$	$\Delta\delta$
h	°		*s*	″	*h*	°		*s*	″	*h*	°		*s*	″	*h*	°		*s*	″
13.7	+12.5	10	−.028	+.03	13.2	+12.7	10	+.049	−.46	13.8	+12.4	12	+.025	+.29					
13.2	+ 7.8	13	−.027	+.22	12.5	+ 7.7	15	−.005	−.07	12.8	+ 7.9	15	+.025	+.34					
9.7	+ 3.8	5	−.040	−.08	14.1	+ 3.1	9	+.020	+.01	14.5	+ 3.4	9	+.013	−.01	14.2	+3.9	17	+.002	−.60
12.0	− 1.9	13	−.025	+.02	12.3	− 2.2	11	+.002	−.45	12.5	− 2.2	11	+.015	+.04	10.5	−2.5	16	−.004	−.49
10.9	− 8.3	9	−.018	−.06	13.4	− 8.4	8	+.019	−.21	11.7	− 8.9	10	+.025	+.14	11.9	−8.1	16	+.004	−.52
			s	″				*s*	″				*s*	″				*s*	″
Mean Δ			−.028	+.03	Mean Δ			+.017	−.24	Mean Δ			+.021	+.16	Mean Δ			+.001	−.54
v			±.005	±.08	v			±.015	±.18	v			±.005	±.12	v			±.003	±.04

While there is not much evidence of uniform variation with the Declination, the comparison with N. A. shows that $\Delta\delta$ can be represented by the expression: +0″.13 +0″.010 δ°. By the application of this quantity, the average residual in the 2-hour series (Table II) is reduced from ±0″.11 to ±0″.10.

The comparison with 303 does not exhibit the accepted systematic variation in $\Delta\delta$, the arc included being probably too short.

TABLE V.—INSTRUMENTAL CORRECTIONS.

In the table which follows, the record is given of the determination of the instrumental corrections *c b a*, of the position of the *Mire*, and of the circle reading at the *Nadir*. For a full night three determinations of *b*, and of the Nadir reading, are made; three of *a*, and two or three of the *Mire*. The date of incomplete determinations, usually one only, are enclosed in parentheses.

Collimation has been determined by readings upon the collimators; the unit of precision is the tenth part of the graduations of the micrometer head, or 0ˢ.003.

The level correction, here given, is that determined over the nadir. The value used for one revolution of the R. A. micrometer has been 3ˢ.210.

The level correction has been checked by use of the hanging level, from time to time; the value adopted for one division of the bubble being 0ˢ.07.

The azimuth is determined from the Ephemeris Right Ascensions of B. J. circumpolar stars, and the mean value for the night is entered here.

The variations in the observed position of the Mire include the error of determination of *a*, and of the reading upon the Mire. The readings furnish a satisfactory check upon the observed azimuth, and upon its changes; adopting the position of the Mire as constant during periods of considerable length. Changes in the electric current, and in the adjustment of the lamp, will introduce variations in the apparent position of the illuminated aperture.

The mean temperature of the night is entered in the table. The total range, on nights of observation, will be included between 28° and 77°, the mean being about 53° Fahr. Through the year it varies between 28° to 58° in December, and 54° to 77° in August; the average monthly range being about 28°.

In general, the variations are not great enough to make the discussion of temperature coefficients of much value. Conversely, the conditions should be favorable for the stability of the instrument.

TABLE V.—RECORD OF THE MERIDIAN CIRCLE.

East.		*c*	*b*	*temp.*	*a*	*Mire*	*Nadir*
1893		*s*	*s*	°	*s*		″
Sept.	(13)	−.003	+.66	51	+.91		16.8
	14	.000	+.66	58	+.95		16.5
	15	+.003	+.67	55	+.94		16.9
	20	−.013	+.66	43	+.82		17.3
	22	−.013	+.67	58	+.94		16.9
	25	−.006	+.66	58	+.83		17.2
Oct.	(1)		+.68	55	+.85		
	2	−.013	+.68	59	+.86		17.3
	3	−.003	+.68	54	+.82		16.8
	(4)		+.64	50	+.77		17.1
	5	−.006	+.66	60	+.84		16.9
	10	−.013	+.63	42	+.77		16.9
	11	−.038	+.59	55	+.87		16.6
	12	−.026	+.63	58	+.89		16.7
	13	−.023	+.65	64	+.96		16.3
	(16)	+.003	+.66	42	+.79		17.2
	17	+.006	+.66	44	+.88		17.1
	(18)	−.003	+.65	44	+.85		17.1
	(19)		+.66	48	+.81	*Δ*W	
	(24)		+.68	46	+.93	*s*	
Nov.	2	.000	+.61	44	+.82	0.96	16.8
	3	−.006	+.64	50	+.86	0.92	16.6
	7	−.006	+.63	50	+.88	0.93	15.9
	8	−.016	+.61	50	+.83	0.98	15.7
	13	−.003	+.64	59	+.84	0.92	15.9
	14	−.016	+.63	56	+.74	0.99	16.2
	15	.000	+.65	53	+.75	0.92	15.5
	(16)		+.64	45	+.72		15.0
	21	−.003	+.57	38	+.71	0.92	16.8
Dec.	(4)		+.59	55	+.79	0.93	16.3
	6	−.010	+.58	57	+.82	0.87	15.9
	(8)		+.57	56	+.84	0.83	16.1
	9	−.016	+.56	54	+.78	0.90	16.2
	11	−.010	+.55	47	+.73	0.91	17.0
	(16)		+.59	56	+.96	0.90	15.6
	19	−.013	+.58	44	+.77	0.93	16.6
	29	−.032	+.55	40	+.84	0.94	17.4
1894							
Jan.	10	+.010	+.53	43	+.88	0.81	17.4
	11	−.003	+.51	48	+.84	0.85	17.3
	12	−.026	+.48	44	+.77	0.89	17.3
	(23)		+.51	45	+.75		
	(24)	−.010	+.47	42	+.77		17.9
Feb.	1	+.035	+.46	32	+.83	0.80	17.8
	2	+.032	+.44	34	+.82	0.87	18.0
	13	+.006	+.44	38	+.88	0.79	17.8
	14	−.003	+.39	41	+.80	0.87	17.5
	26	−.010	+.37	47	+.75		17.7
	27	−.006	+.37	39	+.69	0.87	17.5
	28	−.010	+.36	44	+.71	0.86	17.2
Mar.	(8)	+.010	+.38	43	+.90	0.72	16.2
	12	−.010	+.34	50	+.83	0.83	16.2
	(13)		+.36	45	+.76	0.84	16.0
	14	+.007	+.32	44	+.79	0.83	16.0
	(15)	−.013	+.36	47	+.79	0.87	16.4
	21	+.026	+.38	33	+.85	0.79	16.9

East.		*c*	*b*	*temp.*	*a*	*Mire*	*Nadir*
1894		*s*	*s*	°	*s*	*s*	″
Mar.	22	.000	+.37	39	+.83	0.87	16.8
	23	.000	+.38	44	+.84	0.83	17.1
Apr.	2	−.010	+.35	47	+.70	0.90	17.0
	3	−.016	+.35	51	+.69	0.92	17.4
	4	−.019	+.36	52	+.71	0.89	17.4
	5	−.022	+.35	53	+.70	0.90	17.3
	(6)	−.019	+.35	49	+.60	0.94	17.3
	9	−.003	+.39	60	+.77	0.89	16.7
	16	−.016	+.35	41	+.65	0.88	17.4
	17	−.019	+.38	53	+.79	0.88	17.7
	18	−.022	+.39	60	+.82	0.90	16.7
	(20)		+.40	59	+.73	———	17.9
	(23)	−.003	+.43	41	+.69	0.84	17.2
	30	−.016	+.40	50	+.88	0.89	15.7
May	(1)		+.35	45	+.84		15.3
	2	−.016	+.36	49	+.76	0.91	16.6
	7	−.007	+.40	63	+.74	0.93	16.3
	(8)		+.37	62	+.68	0.96	16.7
	9	−.003	+.36	60	+.63	0.98	16.8
	(18)		+.39	38	+.72		
	22	−.017	+.44	51	+.86	0.91	16.4
	23	−.006	+.42	50	+.88	0.89	15.5
June	8	−.019	+.45	49	+.94		15.3
	(14)		+.45	54	+.84		16.2
	19	−.010	+.43	56	+.93	0.92	15.9
	20	−.003	+.45	60	+.88	0.96	16.5
	21	−.010	+.42	58	+.78	0.95	17.2
	(22)	−.010	+.44	61	+.81	1.00	17.2
	25	−.016	+.40	47	+.61	0.87	16.4
	26	−.019	+.44	55	+.80	0.87	16.2
	(27)	−.026	+.43	57	+.82	0.93	15.9
July	(2)		+.42	70	+.66	0.97	
	5	−.032	+.40	71	+.63	0.96	17.5
	6	−.019	+.45	67	+.63	0.95	17.5
	11	−.019	+.44	67	+.60	0.98	17.4
	13	−.016	+.44	68	+.62	0.93	17.7
	16	−.022	+.44	70	+.64	0.96	17.1
	18	−.019	+.45	66	+.56	0.89	17.6
	20	−.010	+.45	66	+.53	0.95	17.8
	23	−.003	+.47	67	+.53	0.95	18.0
	(25)	−.003	+.47	59	+.46	0.95	17.2
	(30)		+.51	70	+.73	0.91	
Sept.	(17)	−.017	+.63	68	+.89	———	
	(19)		+.57	70	+.79	1.03	
	(21)		+.56	76	+.79	1.05	
	(24)		+.57	63	+.71	0.91	
	(28)	+.017	+.53	47	+.88	0.94	16.6
West.							
1894							
Oct.	(2)	+.007	−.05	55	+.19	0.95	14.0
	3	−.010	−.18	67	+.26	0.97	12.8
	4	−.016	−.27	71	+.19	0.99	13.5
	5	−.003	−.29	66	+.05	1.00	15.2
	(8)	.000	−.28	64	−.06	1.01	14.9
	9	.000	−.29	63	−.04	0.97	15.8

Instrument adjusted in level and azimuth, October 2, 1894. Reversal.

West. 1894		*c* s	*b* s	*temp.* °	*a* s	*Mire* s	*Nadir* "
Oct.	10	.000	−.33	58	−.18	0.98	17.1
	12	+.003	−.32	60	−.09	0.94	15.9
	(15)		−.30	72	+.04	1.02	13.5
	16	−.003	−.30	62	−.04	0.98	15.2
	22	.000	−.15	51	+.23	0.92	14.7
	(24)		−.19	52	+.17	0.88	
	25	−.003	−.25	58	+.23	0.93	15.0
	29	−.010	−.28	55	+.13	0.98	15.8
	(30)		−.28	55	+.14	0.93	16.9
Nov.	5	−.003	−.35	63	−.02	0.97	16.7
	6	.000	−.38	65	−.07	0.98	16.8
	(7)	+.006	−.37	66	.00	0.98	
	8	.000	−.40	65	−.16	1.00	17.1
	(9)		−.43	64	−.23	1.02	
	(10)		−.42	66	−.23	1.00	16.9
	(12)		−.43	65	−.11	0.90	
	14	−.003	−.44	62	−.31	1.01	17.4
	16	.000	−.39	55	−.25		17.6
	19	−.003	−.42	61	−.19	1.02	16.5
	23	.000	−.43	56	−.10	1.00	16.4
	(28)		−.33	38	−.02	0.89	
	(30)	+.003	−.25	36	+.07	0.93	17.0
Dec.	(10)	−.003	−.25	36	+.11	0.89	
	13	+.003	−.35	44	+.19	0.88	16.9
	(24)		−.34	36	+.02	0.93	
1895							
Jan.	(2)		−.40	38	.00		
	(10)		−.45	52	+.23	0.84	
	25	.000	−.50	37	+.05	0.91	20.0
	26	.000	−.51	34	+.04	0 92	20.4
	28	+.010	−.53	32	−.01		21.2
	29	.000	−.55	44	.00		19.7
	30	−.003	−.57	45	+.02		19.9
	31	.000	−.59	46	−.08	0.89	20.1
Feb.	1	+.003	−.60	47	−.08	0.90	20.2
	2	+.013	−.62	48	−.11	0.91	20.2
	4	+.013	−.68	51	−.19	0.93	20.0
	5	.000	−.68	51	−.24	0.94	20.3
	(6)		−.67	50	−.24	0.92	20.5
	(14)	−.003	−.55	44	−.12	0.93	18.9
	18	−.006	−.62	51	−.03	0.89	18.9
	20	−.010	−.64	41	−.18	0.92	19.9
	(25)		−.53	44	−.11	0.93	
	(26)	−.010	−.62	54	−.12	0.96	17.5
	27	−.010	−.65	58	−.09	0.96	17.4
	28	−.003	−.62	53	−.17	0.93	18.8
Mar.	4	.000	−.64	51	−.26	0.95	19.9
	(22)		−.47	34	+.05	0.85	
	(29)		−.59	33	−.22	0.94	
Apr.	2	+.006	−.63	43	−.09	0.92	20.2
	5	+.010	−.60	42	−.08	0.88	20.0
	8	−.003	−.61	45	−.10	0.93	19.8
	10	.000	−.61	35	−.23	0.91	21.3
	11	−.003	−.62	46	−.14	0.97	19.8
	15	+.003	−.56	47	+.01	0.92	19.1

West. 1895		*c* s	*b* s	*temp.* °	*a* s	*Mire* s	*Nadir* "
Apr.	17	+.003	−.60	47	−.11	0.94	19.8
	18	+.003	−.61	51	−.11	0.93	19.2
	22	+.006	−.69	64	−.13	0.99	18.2
	(29)		−.57	46	−.09	0.97	
May	7	+.003	−.64	52	−.05	0.99	18.8
	8	−.003	−.63	52	−.12	0.99	19 1
	(9)	.000	−.68	55	−.12	0.93	18.8
	13	+.003	−.69	66	−.14	0.90	17.3
	14	−.010	−.70	64	−.25	0.94	18.6
	16	−.006	−.68	60	−.37	1.03	19.3
	17	.000	−.68	56	−.37	0.97	19.6
	21	.000	−.63	49	−.19	1.00	19.3
	22	−.003	−.64	50	−.14	0.99	19.7
	23	.000	−.62	51	−.14	0.98	18.4
	(28)		−.52	38	−.23	1.05	
	29	−.006	−.56	49	.00	0.97	18.4
July	(12)	−.003	−.61	67	−.06	0.98	24.9
	15	−.010	−.62	75	−.18	1.11	22.4
	16	−.010	−.60	66	−.34	1.05	23.0
	17	−.010	−.62	67	−.37	1.05	23.0
	19	−.003	−.58	62	−.26	1.05	21.8
	22	−.010	−.60	71	−.10	1.02	19.0
	23	−.006	−.61	72	−.17	1.03	21.2
	24	−.003	−.61	71	−.24	1.02	20.7
	25	−.016	−.60	68	−.34	1.07	21.2
	(26)	−.003	−.57	64	−.28	0.99	21.4
	30	−.003	−.57	51	−.26		23.7
	31	−.006	−.55	63	−.02	1.07	20.9
Aug.	5	−.010	−.55	76	−.19	1.07	19.4
	8	−.013	−.55	64	−.33		21.3
	12	−.003	−.55	70	−.04	1.07	19.2
	14	−.006	−.54	72	−.05	1.10	18.9
	16	−.016	−.58	73	−.16	1.06	19.2
	(19)		−.54	72			18.4
	21	−.003	−.54	60	−.27	1.08	20.8
	(23)		−.51	71			18.4
	(26)		−.48	57			21.4
	(29)		−.45	55			19.8
East. 1895							
Sept.	(2)		−.45	60	+.02	1.06	41.6
	4	+.010	−.41	53	+.05	1.03	41.7
	6	+.010	−.41	66	+.16	1.04	41.1
	(9)	.000	−.42	52	−.08	0.94	
	(13)		−.38	45	.00	1.08	
	(18)	+.003	−.35	46	+.22	0.96	
	19	.000	−.37	51	+.15	1.04	40.4
	23	+.013	−.36	60	+.15	1.03	41.5
	(27)		−.40	70	+.07	1.00	
Oct.	1	+.019	−.43	65	−.25	1.06	42.5
	7	+.010	−.43	64	−.06	1.05	42.2
	9	+.010	−.42	63	−.13	1.05	42.4
	24	+.006	−.39	57	+.15		40.1
Nov.	(1)		−.41	53	−.03	0.98	

Instrument reversed. Micrometers cleaned, September 2, 1895.

East.		c	b	temp.	a	Mire	Nadir
1895		s	s	°	s	s	"
Nov.	7	+.010	−.31	46	+.10	0.94	41.2
	13	+.022	−.37	48	+.11	0.95	41.6
	19	−.006	−.43	64	−.23	0.97	43.0
	(23)		−.48	36	−.21		
Dec.	(3)		−.40	51	+.17		
	9	+.029	−.42	52	+.10	0.93	41.0
	(20)		−.45	29	−.06	0.96	40.5
	(24)		−.46	30			
	(30)		−.50	41	+.03	0.94	42.4
1896							
Jan.	2	.000	−.49	46	−.12	0.99	42.4
	6	+.010	−.51	52	−.09	0.93	42.8
	(30)		−.53	43	+.01	0.94	
Feb.	(3)		−.60	32	−.01	0.87	
	7	+.006	−.59	41	−.04	0.95	42.1
	12	.000	−.64	47	−.12	1.02	42.3
	(19)		−.58	55	−.11	0.91	
Mar.	10	+.013	−.57	48	+.09	0.93	41.6
	12	+.019	−.62	55	+.02	0.93	41.7
	(23)		−.56	53	+.09		
	(31)		−.66	41	−.01	1.01	

East.		c	b	temp.	a	Mire	Nadir
1896		s	s	°	s	s	"
Apr.	2	+.022	−.59	46	+.09	0.94	41.3
	(20)		−.61	40	+.08		
	(27)		−.59	38	+.06		
May	7	+.010	−.62	41	+.06	0.92	40.1
	11	+.013	−.60	39	+.06	0.90	40.5
	(15)		−.68	41			
	(25)	+.017	−.59	70			
	(26)		−.61	76	+.17	0.95	
June	(3)		−.64	46	−.14	0.98	
	8	+.013	−.60	60	−.15	1.00	42.3
	10	+.019	−.61	65	−.26	1.01	42.8
	11	+.019	−.60	68	−.12	0.98	42.2
	12	+.013	−.61	67	−.27	1.00	42.5
	16	+.010	−.61	64	−.44	1.00	43.7
	17	+.016	−.61	60	−.49	0.98	43.6
	19	+.016	−.64	64	−.32	0.98	42.5
	22	−.008	−.61	72	−.25	1.00	42.4
	(24)	−.019	−.63	73	−.29		42.0
	(25)		−.63	72	−.36	1.08	42.0
	(26)		−.63	66	−.37	0.98	43.0
	(29)	+.007	−.61	54	−.39		42.0

The Collimation. The correction has been small, and allowing for the uncertainty of the individual determinations, the changes are usually slight between successive values. If they are combined in periods of three to four months, there result the following mean values, with the average residual for one determination:

		s	s
1893	East	c —.010	v ±.008
1894	East	c —.004	v ±.012
1894	East	c —.013	v ±.008
1894	West	c —.002	v ±.004
1895	West	c +.001	v ±.005
1895	West	c —.005	v ±.004
1895	East	c +.010	v ±.007
1896	East	c +.008	v ±.006
1896	East	c +.011	v ±.008

There is some evidence of progressive change, more clearly shown in the annual values which follow:

		s	s
1893 to 1894	East	c —.009	v ±.009
1894 to 1895	West	c —.002	v ±.004
1895 to 1896	East	c +.010	v ±.007

The mean value for the whole period is: c —^{s}.002, and $v = \pm 0^s.009$. The average change, between successive determinations, is $\pm 0^s.008$, which includes the error of both observations, about $0^s.003$ for each.

In Table VI the record has been reduced to a series by months, to better exhibit progressive changes. The level and azimuth errors were reduced very nearly to zero when the adjustment was made, October 2, 1894. The level error increased rather rapidly to $0^s.3$, after which no large variations were noted. The azimuth error has since fluctuated, within a range of $0^s.3$ each side of zero.

TABLE VI.—MONTHLY RECORD OF THE MERIDIAN CIRCLE.

Month.	*Circle.*	*Det.*	*b*	*Temp.*	*Det.*	*a*	*Temp.*	*Det.*	*Nadir.*	*Temp.*
			s	°		*s*	°		″	°
1893—Sept.	East	6	+.66	54	6	+.90	54	6	16.9	55
Oct.	"	14	+.65	51	14	+.85	51	11	16.9	52
Nov.	"	9	+.62	49	9	+.79	49	9	16.0	49
Dec.	"	8	+.57	51	8	+.82	51	8	16.4	51
1894—Jan.	"	5	+.50	44	5	+.80	44	4	17.5	44
Feb.	"	7	+.40	39	7	+.78	39	7	17.6	39
Mar.	"	8	+.36	43	8	+.82	43	8	16.4	43
Apr.	"	12	+.37	51	12	+.73	51	12	17.1	51
May	"	8	+.39	52	8	+.76	52	7	16.2	54
June	"	9	+.43	55	9	+.82	55	9	16.3	55
July	"	11	+.45	67	11	+.60	67	9	17.5	67
Sept.	"	5	+.57	65	5	+.81	65			
Yearly Means		102	+.50	52	102	+.78	52	90	16.8	52
		v	±.10		*v*	±.05		*v*	±0.5	

At reversal, the level and azimuth of the instrument were adjusted.

Month.	*Circle.*	*Det.*	*b*	*Temp.*	*Det.*	*a*	*Temp.*	*Det.*	*Nadir.*	*Temp.*
			s	°		*s*	°		″	°
1894—Oct.	West	15	−.25	61	15	+.08	61	14	15.0	61
Nov.	"	13	−.39	59	13	−.12	59	9	16.9	59
Dec.	"	3	−.31	39	3	+.11	39	1	16.9	44
1895—Jan.	"	8	−.51	41	8	+.03	41	6	20.2	40
Feb.	"	12	−.62	50	12	−.14	50	11	19.3	50
Mar.	"	3	−.57	39	3	−.14	39	1	19.9	51
Apr.	"	10	−.61	47	10	−.11	47	9	19.7	47
May	"	12	−.64	53	12	−.18	53	11	18.8	55
July	"	12	−.60	66	12	−.22	66	12	21.9	66
Aug.	"	10	−.53	67	6	−.17	70	10	19.7	67
Yearly Means		98	−.50	55	94	−.09	55	84	″	°
		v	±.11		*v*	±.09		1894	15.8	60
								1895	20.0	55
								v	±0.8	

Instrument reversed. Declination micrometer removed and cleaned.

Month.	*Circle.*	*Det.*	*b*	*Temp.*	*Det.*	*a*	*Temp.*	*Det.*	*Nadir.*	*Temp.*
			s	°		*s*	°		″	°
1895—Sept.	East	9	−.39	56	9	+.08	56	5	41.3	58
Oct.	"	4	−.42	62	4	−.07	62	4	41.8	62
Nov.	"	5	−.40	49	5	−.05	49	3	41.9	53
Dec.	"	5	−.45	41	4	+.06	43	3	41.3	41
1896—Jan.	"	3	−.51	47	3	−.07	47	2	42.6	50
Feb.	"	4	−.60	44	4	−.07	44	2	42.2	61
Mar.	"	4	−.60	49	4	+.05	49	2	41.6	60
Apr.	"	3	−.60	41	3	+.08	41	1	41.3	46
May	"	5	−.62	53	3	+.10	49	2	40.3	61
June	"	13	−.62	64	13	−.30	64	12	42.6	65
Yearly Means		55	−.52	53	52	−.06	53	36	41.9	59
		v	±.09		*v*	±.10		*v*	±0.6	

In the above record there is an evident progressive change in the level correction. While this change corresponds, in general, to a change in the mean temperature, the use of a coefficient depending upon the temperature of the night does not improve the agreement of individual values. Any complete discussion should include the variation of temperature between the nights of observation. It is sufficient, for practical purposes, to conclude that no prediction of instrumental corrections can be based upon the temperature at the time of observation.

This conclusion will be more plainly shown in the comparison of the determinations, made during the first year, for each 10° of temperature:

M. Temp.	*b*	*a*	*Nadir.*
°	*s*	*s*	"
36	+.43	+.79	17.5
45	+.48	+.79	16.9
55	+.54	+.82	16.5
64	+.47	+.71	17.2
71	+.48	+.71	17.3

The average change between successive determinations of level, which are separated by intervals varying widely in length, does not exceed $\pm 0^s.03$, the largest change amounting to $0^s.1$. The change recorded includes the error of determination for two nights. The probable error of a single determination of *b* has been obtained by comparison of the observed values upon all nights when three observations were made, and when no rate was adopted. By the use of rates the residuals are commonly made very small, and are, obviously, not to be considered in this connection. The observed probable error will, then, include small changes which have been considered as falling within the error of observation. For one determination the p. e. is $\pm 0^s.005$; and for the mean of three, $\pm 0^s.003$. Rate for *b* has been generally adopted when the change observed is progressive, and amounts to $0^s.02$ or more in the course of the night.

In azimuth the changes are comparatively large, and often abrupt, between successive determinations. A rate is often necessary in the correction adopted for the night. The reading upon the *Mire* has been a useful and effective check upon the observed azimuth correction. A rate for *a* has been adopted, only, when it is confirmed by the Mire, and when the change amounts to $0^s.04$ in the course of the night.

The average change between nights of observation is $\pm 0^s.08$, and may amount to $0^s.3$.

The probable error of a determination of a has been obtained, by comparison of the observed values, upon all nights when three pairs of circumpolars afford three independent determinations, and when no rate has been adopted. The p. e. of one determination is $\pm 0^s.018$, and for the mean of three the p. e. is $\pm 0^s.011$.

The changes in the reading upon the Nadir may be due to the combined effect of changes in the position of the circle, and of the microscopes. Such large changes, as are shown in the tables preceding, are in no sense confirmed by variations in the values observed for the latitude; and it may be concluded that no actual change in the observed position of the vertical is to be included.

The average change between successive determinations is $\pm 0''.6$, and the largest recorded is $2''.8$.

The probable error of a Nadir determination is obtained from comparison of the three observed values, upon all nights when a rate was not adopted. The p. e. of one determination is $\pm 0''.18$, whence, for the mean of three the p. e. is $\pm 0''.11$.

A rate has not been adopted unless the observed equator points confirm a progressive change, amounting to $0''.4$ or more, in the course of the night.

Finally, as a matter of record, the monthly means of the temperature upon nights of observation, during three years, are appended:

Sept. . . 60°	Dec. . . . 44°	Mar. . . . 44°	June . . . 59°
Oct. . . . 58	Jan. . . . 44	Apr. . . . 46	July . . . 66
Nov. . . 52	Feb. . . . 44	May . . . 53	Aug. . . 67
—	—	—	—
Seasons . 57	44	48	64

TABLE VII.—THREAD INTERVALS.

In Table VII are collected the various values of the thread intervals, in groups of from two to six months. There are probably only very slight actual changes in the relative positions. The intervals have been derived from all circumpolar transits of B. J. stars, for the individual threads; and the transits of B. J. equatorial stars have been also used for the reduction of the center wire to the mean of seven.

The value of one revolution of the R. A. micrometer has been determined by readings upon the transit threads, combined with the observed intervals.

The value of one division of the level and of the collimator micrometers are given below.

TABLE VII.—THREAD INTERVALS. REDUCTION TO THE MEAN OF SEVEN.

Date.	Circle.	II.	III.	IV.	V.	VI.	VII.	VIII.
		s	*s*	*s*	*s*	*s*	*s*	*s*
Sept. to Dec., 1893	E	+12.012	+4.025	+2.020	+0.071	—1.973	—4.104	—12.049
Jan. to Mar., 1894	E	.015	.026	.013	.065	.983	.111	.029
Apr. to July, 1894	E	.022	.029	.007	.067	.968	.111	.048
Oct. to Dec., 1894	W	—12.021	—4.033	—2.019	—0.072	+1.977	+4.111	+12.056
Jan. to Mar., 1895	W	.039	.029	.019	.069	.971	.121	.061
Apr. to May, 1895	W	.040	.024	.015	.070	.971	.111	.066
July to Aug., 1895	W	.030	.031	.015	.064	.971	.108	.064
Sept. to Dec., 1895	E	+12.023	+4.029	+2.018	+0.084	—1.973	—4.109	—12.069
Jan. to June, 1896	E	.018	.027	.017	.077	.967	.110	.067
Means		12.024	4.028	2.016	0.071	1.973	4.111	12.057
v		±.008	±.002	±.003	±.004	±.003	±.003	±.010

One Revolution *R. A. Micrometer:* E. 3ˢ.204; W. 3ˢ.208. Mean, 3ˢ.206 = 48″.09.

One Division *Hanging Level:*

Level Trier (10″.05),	Nov. 27, 1894, . .	1 div.	= 1″.05	
Swung to Meridian Circle,	Sept. 28, 1894, . .	"	1 .02	52°
	Nov. 16, 1894, . .	"	1 .07	61°
	Aug. 30, 1895, . .	"	1 .13	66°
	Mean, ...	"	1 .07 = 0ˢ.071	

One Revolution South Collimator Micrometer, 21″.8 = 1ˢ.46

One Revolution North Collimator Micrometer, 22″.5

In the tabulation of the thread intervals above, several determinations of short period have, in some cases, been combined in one.

TABLE VIII.—RATE OF DENT SIDERIAL CLOCK (No. 4).

Without counting the determinations made by other observers, with the transit instrument, in intervals of my absence from the Observatory, there were made 255 observations of the clock correction, in the period covered by this Meridian Circle series.

From these there have been combined the determinations, necessary to give an approximately uniform series of intervals, for the discussion of the rate, and of the effect of temperature. The results follow in Table VIII. The series is necessarily divided, whenever the clock was stopped and set. Having a gaining rate, this course has been adopted; but the pendulum bob has since been slightly lowered, so that with a losing rate the hands may be moved forward, when the correction is large. The stopping of the clock has, however, usually produced no sensible change in the rate.

The table gives the dates and intervals; the mean rate and temperature for these intervals; and, finally, the "computed" rate for each interval, from the variation with temperature coefficient applied. The mean residual of the observed rates is given, and may be compared with the difference, "obs.—comp.," as a test of the performance of the clock, and of the effect of applying the coefficient of temperature. The periods, from one to five months, are long enough to make the test a severe one. By a comparison of observed and computed rates, in the longer intervals, the clock will be found to swing through a cycle of changes, which does not follow the change in temperature.

The clock is inclosed in a small chamber, with double doors, within the clock-room. Changes of temperature are usually progressive, for periods of a week or more, and rarely amount to 1° in a day. The total range is from 41° to 78°, and the average temperature is about 56° Fahr. The value obtained, by least square solution, for the temperature coefficient, is a change of $+0^s.020$ in the rate of the clock correction, for +1° of change in temperature; and the computed rate, during such intervals as are given in the table, would have an average residual, from the observed rate, of $\pm 0^s.06$.

TABLE VIII.—RATE OF DENT SIDERIAL CLOCK NO. 4, WITH TEMPERATURE VARIATION.

				Interval.	*Rate.*	*Temp.*	*Comp.*
1893					s	°	s
Sept.	13	to Sept.	25	12 days	−1.37	60.5	−1.27
	25	Oct.	2	7	−1.32	62.2	−1.25
Oct.	2		12	10	−1.34	61.5	−1.26
	12		24	12	−1.38	57.2	−1.32
	24	Nov.	2	9	−1.34	55.5	−1.34
Nov.	2		13	11	−1.27	53.5	−1.36
	13		21	8	−1.21	53.7	−1.36
	21	Dec.	6	15	−1.25	51.1	−1 39
Dec.	6		11	5	−1.25	54 2	−1.35
	11		19	8	−1.27	52.0	−1.38
	19		29	10	−1.39	48.0	−1.43
	29	Jan.	11	13	−1.57	42.8	−1.50
Jan.	11		24	13	−1.59	43.9	−1.49
	24	Feb.	2	9	−1.62	45.6	−1.47
	Five months,			10	−1.37	53.0	
					$v \pm .10$		
Change +s.013 per degree. obs. − comp. ±s.09							
1894				Clock set.			
Feb.	13	to Feb.	26	13 days	−1.69	42.8	−1.68
	26	Mar.	12	14	−1.66	45.5	−1.64
Mar.	12		23	11	−1.61	47.6	−1.62
	23	Apr.	3	11	−1.58	50.9	−1.58
Apr.	3		9	6	−1.53	54.7	−1.53
	9		16	7	−1.50	57.0	−1.50
	16		23	7	−1.52	55.7	−1.51
	Two months,			10	−1.58	50.6	
					$v \pm .06$		
Change +s.013 per degree. obs. − com . ±s.01							
				Clock set.			
Apr.	30	to May	9	9 days	−1.49	55.1	−1.55
May	9		22	13	−1.47	57.8	−1.50
	22	June	1	10	−1.52	57.4	−1.51
June	1		8	7	−1.59	54.7	−1.56
	8		19	11	−1.59	55.6	−1.54
	19		27	8	−1.48	60.0	−1.46
	Two months,			10	−1.52	56.8	
					$v \pm .04$		
Change +s.018 per degree. Obs. − comp. ±s.03							
Small weight removed from pendulum.							
July	5	to July	11	6 days	−0.59	73.0	
	11		16	5	−0.60	75.0	
	16		23	7	−0.61	75.0	
	New Rate of clock,				−0.60	74.3	
Oct.	3	to Oct.	10	7 days	−0.99	62.0	−0.91
	10		16	6	−0.84	65.6	−0.82
	16		22	6	−0.91	64.0	−0.86
	22		29	7	−1.05	58 7	−0.99
	29	Nov.	5	7	−1.06	58.0	−1.01
Nov.	5		14	9	−0.80	62.4	−0.90
	14		23	9	−0.84	62.9	−0 89
	23		30	7	−0.89	58.7	−0.99
	30	Dec.	13	13	−1.05	50.4	−1.20
Dec.	13		24	11	−1.34	45.6	−1.32

				Interval.	*Rate.*	*Temp.*	*Comp.*
1894		1895			s	°	s
Dec.	24	Jan.	2	9 days	−1.30	45.0	−1.34
Jan.	2		10	8	−1.30	44.4	−1.35
	10		25	15	−1.42	45.5	−1.32
	25		31	6	−1.53	43.2	−1.38
	Four months,			9	−1.09	54.8	
					$v \pm .10$		
Change +s.026 per degree. obs. − comp. ±s.07							
				Clock set.			
1895							
Feb.	1	to Feb.	6	5 days	−1.23	48.0	−1.28
	6		14	8	−1.18	50.0	−1.26
	14		20	6	−1.19	49.0	−1.27
	20		26	6	−1.19	51.4	−1.25
	26	Mar.	4	6	−1.21	52.4	−1.24
Mar.	4		22	18	−1.36	51.6	−1.25
	22		29	7	−1.37	49.4	−1.27
	29	Apr.	5	7	−1.31	50.6	−1.26
Apr.	5		11	6	−1.25	51.8	−1.24
	11		18	7	−1.23	53.5	−1.22
	18		29	11	−1.14	58.3	−1.18
	29	May	7	8	−1.30	54.3	−1.22
May	7		17	10	−1.14	60.1	−1.16
	Three months,			8	−1.24	52.3	
					$v \pm .06$		
Change +s.010 per degree. obs. − comp. ±s.05							
				Clock set.			
May	21	to May	29	8 days	−1.29	59.0	
July	12	July	19	7 days	−0.81	74.0	−0.89
	19		26	7	−0.87	75.1	−0.85
	26	Aug.	5	10	−1.04	72.0	−0.97
Aug.	5		12	7	−0.78	75.3	−0.84
	12		21	9	−0.79	77.4	−0.76
	21		26	5	−0.89	75.2	−0.84
	One month,			7	−0.86	74.8	
					$v \pm .07$		
Change +s.04 per degree. obs. − comp. ±s.05							
				Clock set.			
Clock cleaned Sept. 8 by F. H. McConnell.							
Sept.	13	to Sept.	23	10 days	−0.26	61.0	−0.51
	23	Oct.	1	8	−0.23	64.0	−0.39
Oct.	1		9	8	−0.38	69.0	−0.18
	9		24	15	−0.33	66.0	−0.30
	24	Nov.	1	8	−0.54	61.0	−0.51
Nov.	1		7	6	−0.62	58.0	−0.63
	7		13	6	−0.83	54.2	−0.79
	13		23	10	−0.61	57.3	−0.66
	23	Dec.	3	10	−0.83	53.0	−0.84
Dec.	3		9	6	−1.07	51.0	−0.94
	9		20	11	−0.95	50.8	−0.93
	20		30	10	−1.25	43.4	−1.25
	Four months,			9	−0.66	57.4	
					$v \pm .27$		
Change +s.042 per degree. obs. − comp. ±s.08							
				Clock set.			

1896				*Interval.*	*Rate.*	*Temp.*	*Comp.*
					s	°	*s*
Jan.	2	to Jan.	6	4 days	−1.09	46.5	−1.01
	6		30	24	−0.96	50.0	−0.97
	30	Feb.	7	8	−0.99	47.6	−1.00
Feb.	7		19	12	−0.87	49.7	−0.98
	19	Mar.	10	20	−0.97	50.2	−0.97
Mar.	10		23	13	−0.96	52.5	−0.95
	23	Apr.	2	10	−0.98	54.6	−0.93
Three months,				13	−0.97	50.2	
					v ±.04		

Change +ˢ.009 per degree. obs. − comp. ±ˢ.04

Clock set.

				Interval.	*Rate.*	*Temp.*	*Comp.*
					s	°	*s*
Apr.	20	to Apr.	27	7 days	−1.30	44.3	−1.19
	27	May	7	10	−1.07	47.1	−1.08
May	7		15	8	−0.92	49.0	−1.02
	15		25	10	−0.88	51.6	−0.93
	25	June	3	9	−0.57	61.1	−0.66
June	3		10	7	−0.71	60.0	−0.69
	10		16	6	−0.46	65.1	−0.54
	16		22	6	−0.48	70.4	−0.39
	22		29	7	−0.38	73.3	−0.30
Two months,				8	−0.75	58.0	
					v ±.26		

Change +ˢ.029 per degree. obs. − comp. ±ˢ.08

TABLE IX.—MICROMETER, FLEXURE, ECCENTRICITY, AND RUNS.

In Table IX are given the various determinations of "semi-horizontal flexure." The determination consists of a circle reading upon the south collimator, the setting of the thread of the north upon the south, reading upon the north, and one more upon the south. When these readings have been repeated, with a new setting of north upon south, the series is given weight 2. The flexure adopted is 0″.1 sin. Z. D. (p. e. ±0″.02). Later observations give a still smaller value for the semi-horizontal flexure, than the one resulting from these determinations.

The value of one revolution of the micrometer is obtained by circle readings upon three adjoining divisions, the pointing being upon the fixed horizontal thread of the south collimator. The runs correction is eliminated, by setting with precision upon even divisions; and, in the flexure observations, the difference of micrometer readings is always small.

The runs correction has been obtained, by use of all the observations made. From twenty to thirty readings, each night, are available for individual values. These are combined for periods, during which no change is noted, and until the microscopes have been adjusted in focus. The table gives the *correction*, for the mean of one revolution of the four microscopes.

The eccentricity of the circle is not required for the reduction of circle readings made upon all four microscopes, but the determinations of e are recorded here. The sine term of the circle flexure is included in the value of f, and for a circle fixed with respect to the telescope, this term does not require separate consideration. The cosine term has not been used in the reductions. Its effect is eliminated from the mean of observations made in both positions.

The probable error of a circle reading, as deduced from the runs comparison, may be adopted as ±0ˢ.07 for the mean of four microscopes, two divisions each. Since the difference of division error is included, this last effect must be small, and adjoining divisions have probably nearly the same errors.

TABLE IX.

Flexure.					Decl. Micrometer.			Runs Correction.		
Date.	*Temp.*	*f*	*Wt.*		*Date.*	*Temp.*	*1 Rev.*	*Date.*	*R. 1 Rev.*	
	°	″				°	″			″
1893—Dec. 7	E 55	+0.02			1893—Sept. 19	E 49	48.10	Sept. to Dec., 1893 . . .	E	−0.05
1894—Feb. 23	46	0.00			1894—Feb. 23	46	48.12	Jan. to May, 1894 . . .		−0.08
July 28	74	+0.32						June to July, 1894 . . .		−0.06
July 30	76	+0.17			July 30	76	47.98	Oct. to Dec., 1894 . . .	W	+0.06
Sept. 25	59	−0.10			Sept. 25	59	48.12	Jan. to Mar., 1895 . . .		+0.07
Oct. 3	W 69	+0.09			Oct. 3	W 69	48.02	Apr. to May, 1895 . .		+0.05
Nov. 22	53	+0.03			Nov. 22	53	48.16	July to Aug., 1895 . . .		+0.09
Nov. 23	60	+0.27			Nov. 23	60	48.11	Sept. to Dec., 1895 . . .	E	−0.06
1895—Jan. 28	36	−0.45			1895—Jan. 28	36	48.26	Jan. to June, 1896 . . .		−0.05
Jan. 29	40	+0.30			Jan. 29	40	48.12			
Jan. 31	45	+0.11	2		Jan. 31	45	48.07	*Eccentricity, Circle A.*		
May 21	56	−0.04			May 21	56	48.05	Nov. 18, 1893 . . .	*e* 2″.85	
May 25	62	+0.10			May 25	62	47.97	August, 1895 . . .	*e* 2 .61	wt. 2
July 22	82	+0.26			July 22	82	48.19	Mean	*e* 2 .70	
July 30	59	+0.12			July 30	59	48.10			
Aug. 2	78	+0.19	2		Aug. 2	78	48.03	*Mean Eccentricity, Circle B.*		
Aug. 6	83	−0.32	2		Aug. 6	83	48.07	(Movable Circle)	*e* 1″.81	
Aug. 9	71	+0.35	2							
Aug. 12	78	+0.08	2					*Circle Flexure.*		
Sept. 30	E 73	+0.15			Sept. 30	E 73	48.14	From Division Error readings, Aug., '95.		
Nov. 2	57	−0.30			Nov. 2	57	48.08	Circle A:		
Nov. 16	72	+0.10	2		Nov. 16	72	48.12	+″.08 sin. (R − 315°) +″.04 cos. (R − 315°)		
1896—Apr. 3	50	−0.05			1896—Apr. 3	50	48.10	Circle B:		
June 5	54	+0.18	2		June 5	54	48.09	+″.02 sin. (R − 315°) +″.05 cos. (R − 315°)		
June 13	75	+0.06			June 13	75	48.09			
June 23	78	+0.10	2		June 23	78	48.06	Where R is the reading at the lower left hand microscope. The fixed circle, A, reads 315°, when the telescope points to the zenith.		
Mean 26 det.,		+0.067			Mean 23 det.,		48.093			
Mean by weights,		+0.075			P. E. one det.,		±0.042			
(Omitting Jan. 28, 1895),		+0.090								
P. E. one det.,		±0.110								

TABLE X.—GRADUATION ERRORS OF THE MERIDIAN CIRCLE.

The errors of graduation have been measured for the 1° arcs of the fixed circle A, and for the 3° arcs of the movable circle B. The instrument is well adapted for the method employed, the simultaneous reading of both circles, since the movable circle can be quickly and exactly set to any desired difference with respect to the other.

The telescope is not necessarily disturbed, in whatever position it may be. In practice it is usually set so that the handle of the gearing, which moves the circle, is within convenient reach of the observer, at a particular microscope. He may then set the circle, with perfect precision, and without removing his eye from the microscope. Both circles are graduated alike—to every 2′ throughout. The silver rim, upon which the divisions are placed, is 26 inches (66 cm.) in diameter. The graduations are thus 130 to the inch. As measured under the microscopes, the divisions are about 10″ in width, which corresponds to $\frac{1}{1600}$ inch.

The two opposite sets of microscopes are alike in every respect. They are 26.5 inches (67 cm.) in length, and have a power of 40 diameters. The threads are about 25″ apart, as measured on the graduated circle.

In the observing, the sets of measures have never more than barely exceeded an hour in length. They have always been made forward and back, in order to have control upon changes in the position of the microscopes, and to eliminate those of a progressive character.

By observing through opposite quadrants, the effect of circle flexure has been eliminated.

Settings have been made with precision, so that the effect of runs correction is insensible in the microscope readings. Eccentricity need not be considered for the mean of four divisions. If the graduation errors of separate divisions should be required, they may be derived from these readings, by application of the proper corrections. The outline of the method is as follows: The mean of the four divisions of each circle, at 0°, 90°, 180°, and 270°, is adopted for the basis of reference, and the difference is to be measured, for the mean of four divisions, at other points of the circle. For the 45° divisions, the circles are read at eight points for each set, and the movable circle is shifted 45° between the sets. The eight complete sets furnish the graduation error of the 45° divisions of each circle, with a weight of 32 separate measures; and, for each circle, the determination is entirely independent of the graduation errors of the other. This determination was made in both positions of the instrument, fixed circle east and west, to strengthen the measurement. For the intermediate 15° divisions, the sets have extended through 90°, and have been repeated through the opposite quadrant. This furnishes a determination of the intermediate divisions, based upon 12 measures each, from 0° and from 45°. The measure of the 45° divisions, made in this

series, is combined with the former measures, and the graduation errors of all the 15° divisions are then derived. For the 3° arcs the quadrant is divided into 9° arcs, in order that the separate sets need not extend over more than one hour of observation. Beginning, respectively, at 0°, 3°, and 6°, each set will include two of the 15° divisions already determined, for bases of reference; and the process is less likely to perpetuate periodic errors in further subdivision. The determination of the intermediate 3° divisions depends upon 10 measures from each of two 15° divisions. Further measures of the 15° divisions themselves are included, and, introducing these, the graduation errors of all the 3° divisions are derived.

Up to this point, the 3° divisions of both circles have been determined, and the mean values of the graduation errors, obtained for one circle, are independent of the graduation errors of the other.

In each circle, however, the determination of intermediate divisions rests upon the measurements of divisions of the same circle, which have preceded. It is then important that the first measures be strong, in order to prevent too much accumulation of error.

It will be appropriate here to sum up the measures thus far included:

	45° Series.	15° Series.	3° Series.	Sum.
45° divisions,	64	12	10	86
15° "	. .	24	10	34
3° "	. .	. .	20	20

A measure consists of the mean of two readings in the same series, each reading including two pointings upon each of the four microscopes. The two sets of pointings were made separately, the four microscopes being read once around, and then the process repeated. This controlled any change in the position of the instrument, which otherwise might pass undetected. Flexure is eliminated from the mean of the measures.

The errors of the intermediate 1° divisions, for the fixed circle, were obtained by the use of one 3° arc of the movable circle. Each set covers three degrees, and the movable circle is shifted one degree between the sets. The ninety sets furnish the graduation errors of the four 1° divisions of the movable circle, with an accuracy probably exceeding that of any others measured; and the mean values are independent of the graduation errors of the fixed circle, with which the single degrees have been compared through an entire quadrant.

The corrections for these four 1° divisions are then applied, with those for the 3° divisions of the fixed circle, and the graduation errors of the intermediate 1° divisions of the fixed circle are derived. Five measures are thus obtained, each depending upon a division already measured.

This portion of the work could well be repeated, if occasion offers, to provide a stronger basis for continuing the determination of graduation errors. There were made about 1800 settings of the instrument in the course of this work. This includes 29,000 separate microscope pointings, divided equally between two observers. Every precaution was employed in the reduction: the microscope readings were thoroughly checked and tested, and but few mistakes of 5″ and 10″ were found. One 45° set, and three of the 1° sets were repeated, upon indication of larger accidental errors than usual, and the results combined with the original sets.

Table X gives the *corrections* for graduation, for the mean of four divisions, at the respective circle readings. The correction has been determined with 0° as a base. The mean of the corrections thus found may be adopted as the most probable value of the *error* of the base itself; and the column of residuals, v, will then represent the actual graduation corrections. The average residual for the fixed circle A is ±0″.18*; and the probable error of a circle reading upon four divisions, due to graduation, would be ±0″.15. For B the average residual is ±0″.15. For A none exceed 0″.7, and for B the largest does not exceed 0″.4. For single divisions of the circles we should assume graduation errors twice as large as these. Since a second of arc has a lineal value of $\frac{1}{16000}$ inch, the average graduation error would amount to $\frac{1}{40000}$, and the largest would be about $\frac{1}{10000}$ inch.

The probable error of the corrections adopted in the table increases from ±0″.01 for the divisions best determined, to ±0″.04 for the intermediate 1° divisions.

The agreement of the probable error, derived from separate determinations, with that to be predicted from the combination of accidental error of observation with the probable error of measurement of the standards, is satisfactory.

* The same for thirty 3° arcs, only.

TABLE X.—CORRECTIONS FOR GRADUATION.

CIRCLE A.									CIRCLE B.		
	Corr.	*v*		*Corr.*	*v*		*Corr.*	*v*		*Corr.*	*v*
c	"	"	°	"	"	°	"	"	°	"	"
0	0.00	+0.18	30	—0.18	0.00	60	+0.11	+0.29	0	0.00	+0.10
1	+0.09	+0.27	31	—0.02	+0.16	61	—0.02	+0.16	3	+0.19	+0.29
2	—0.15	+0.03	32	—0.24	—0.06	62	—0.19	—0.01	6	0.00	+0.10
3	+0.22	+0.40	33	—0.58	—0.40	63	—0.07	+0.11	9	+0.04	+0.14
4	—0.16	+0.02	34	—0.64	—0.46	64	—0.16	+0.02	12	+0.14	+0.24
5	—0.37	—0.19	35	—0.86	—0.68	65	—0.18	0.00	15	—0.29	—0.19
6	—0.30	—0.12	36	—0.70	—0.52	66	—0.12	+0.06	18	—0.06	+0.04
7	—0.26	—0.08	37	—0.44	—0.26	67	—0.40	—0.22	21	+0.13	+0.23
8	+0.04	+0.22	38	—0.26	—0.08	68	—0.25	—0.07	24	—0.05	+0.05
9	—0.06	+0.12	39	—0.21	—0.03	69	—0.33	—0.15	27	+0.27	+0.37
									30	—0.17	—0.07
10	—0.12	+0.06	40	—0.41	—0.23	70	—0.42	—0.24	33	—0.34	—0.24
11	—0.08	+0.10	41	—0.31	—0.13	71	—0.26	—0.08	36	—0.44	—0.34
12	—0.23	—0.05	42	—0.39	—0.21	72	—0.40	—0.22	39	—0.37	—0.27
13	—0.36	—0.18	43	—0.46	—0.28	73	—0.14	+0.04	42	—0.39	—0.29
14	—0.46	—0.28	44	—0.46	—0.28	74	+0.10	+0.28	45	—0.07	+0.03
15	—0.33	—0.15	45	—0.52	—0.34	75	+0.09	+0.27	48	—0.08	+0.02
16	—0.48	—0.30	46	—0.22	—0.04	76	+0.05	+0.23	51	—0.29	—0.19
17	—0.50	—0.32	47	+0.08	+0.26	77	+0.28	+0.46	54	—0.28	—0.18
18	—0.41	—0.23	48	+0.10	+0.28	78	+0.12	+0.30	57	—0.02	+0.08
19	—0.47	—0.29	49	—0.04	+0.14	79	+0.12	+0.30	60	+0.05	+0.15
									63	—0.17	—0.07
20	—0.19	—0.01	50	—0.19	—0.01	80	—0.08	+0.10	66	—0.22	—0.12
21	—0.17	+0.01	51	—0.22	—0.04	81	—0.02	+0.16	69	—0.12	—0.02
22	—0.33	—0.15	52	—0.38	—0.20	82	+0.14	+0.32	72	—0.24	—0.14
23	—0.19	—0.01	53	—0.18	0.00	83	+0.25	+0.43	75	—0.08	+0.02
24	—0.14	+0.04	54	—0.16	+0.02	84	+0.12	+0.30	78	+0.13	+0.23
25	—0.23	—0.05	55	—0.11	+0.07	85	0.00	+0.18	81	—0.02	+0.08
26	—0.46	—0.28	56	+0.06	+0.24	86	+0.07	+0.25	84	—0.13	—0.03
27	—0.22	—0.04	57	+0.22	+0.40	87	—0.06	+0.12	87	—0.03	+0.07
28	—0.11	+0.07	58	+0.20	+0.38	88	—0.22	—0.04	88	—0.26	—0.16
29	—0.19	—0.01	59	+0.02	+0.20	89	+0.02	+0.20	89	—0.18	—0.08
Circle A: Mean Correction —0".18. Average *v* ±0".18.									M. —0".10; *v* ±0".15		

Adopting as the correction for the 45° divisions, the value above, —0".34, the corrections for the nadir readings upon 134° 56′ and 134° 58′ have been determined, by a special series of direct measures. The mean correction for the two divisions is —0".27 (±0".02).

DETAILS OF OBSERVATIONS

BY NIGHTS.

MERIDIAN CIRCLE OBSERVATIONS:

FROM SEPTEMBER 13, 1893, TO JUNE 29, 1896.

R. H. TUCKER.

DETAILS OF OBSERVATION.

In the record of the observations by nights, the aim has been to include all details necessary to check the reductions; and also for the introduction of such variation, for instance, as might be required by the adoption of new places for the fundamental stars, or by the use of a different constant of refraction.

The form may require some explanation. The "weight" represents the steadiness, rather than any other factor, upon a scale of 5 for perfect conditions and 1 for the worst.

In the first column, B. J. stars are given their designation, from the Ephemeris, in order to distinguish them from the stars not in B. J., for which the places are to be determined. The last are designated by the current number from the observing list. As this list has been extended, the numbers are not always in sequence. The stars will always be looked up by means of their positions; and the combination of the separate observations is made, later on, with strict attention to sequence in Right Ascension.

The "Transit" has been reduced to the center thread V. Seven threads have been almost invariably observed, except for close circumpolars, for which five have usually been taken.

The "Correction" includes the sum of the separate parts, *Aa*, *Bb*, *Cc*.

The "ΔT" is deduced from the B. J. equatorial stars, with the rate for the night.

For stars south of 70°, the corrections and the apparent R. A. are carried out to three places of decimals; for those north of 70°, to two only. The adopted values of *a b c* are given at the foot, with their respective hourly rates.

The "Circle" reading has been corrected for runs, and reduced for the reading of the Declination Micrometer.

The "Refraction" has been computed from the record of the barometer and temperature, with direct interpolation between successive readings. The mean values, given for each night, are sufficient to check the computed correction; and for the application of systematic reduction, for another constant of refraction. That of Poulkova has been employed here, with the reduction for the barometer from page 232, Vol. I, Publications of the Lick Observatory. For comparison with BESSEL'S constant, see paragraph 25 of the Introduction.

The "Equator" Point has been derived from B. J. places of the fundamental list of equatorial stars. A rate has been adopted, only, when the Nadir readings confirm a progressive change; and the "Rate," at the foot, is consequently to be applied both to Equator Point and Nadir, when one is recorded.

The addition of the separate values of "φ" will render it possible to reduce these observations, either to the zenith directly, or with the places of the circumpolar stars.

The temperature, "t," and the barometer, "B," are given in degrees Fahrenheit, and in inches, respectively.

In this series are included 3936 observations, nearly all of which are complete in both coördinates. They are distributed, approximately:

1400 observations of B. J. equatorial stars.
1000 " " B. J. circumpolar stars.
100 " " zenith stars from B. J.
1400 " " stars not in B. J.

The exclusion of observations of B. J. stars, on broken and incomplete nights, renders the count of results less full.

There have been reduced 180 nights, of which 14 are either broken, or for special observations. Besides these, a number of nights were broken off by bad conditions, and were rejected entirely. Others were used for the determination of bisection error, of magnitude reduction, and for the places of comparison stars. They have not been included here, since the separate results are not required.

SEPTEMBER 13, 1893. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R.A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
9 Serpentis . .	18 51 25.515	+ 1.037	−30.371	18 50 56.181	281 40 19.80	− 32.74	50.88	+ 4 3 56.18	26.17
λ Aquilae . . .	19 1 5.963	+ 1.088	.386	19 0 36.665	272 34 3.46	− 45.50	50.88	− 5 2 32.92	25.79
ω Aquilae . . .	13 19.171	+ .995	.403	19 12 49.763	289 0 30.95	− 24.27	50.88	+11 24 15.80	26.10
δ Aquilae . . .	20 37.885	+ 1.043	.414	19 20 8.514	280 30 35.72	− 34.20	50.88	+ 2 54 10.64	25.62
λ Urs. Min. .	30 51.27	−17.91	.428	19 30 2.93	6 33 24.97	+ 62.93	50.88	+88 58 37.02	24.94
Gr. 1374 S. P. .	47 53.54	+ 2.27	.452	7 47 25.36	23 21 44.86	+125.34	50.88	+74 12 0.68	25.66
103 . . .	59 26.615	− 1.021	.469	19 58 57.167	284 35 2.20	− 29.23	50.88	+ 6 58 42.09	. . .
9 Aquilae . . .	20 6 19.113	− 1.066	.478	20 5 49.701	276 28 17.70	− 39.64	50.88	− 1 8 12.82	25.73
104 . . .	21 44.246	− 1.166	.500	20 21 14.912	259 3 22.36	− 73.50	50.88	−18 33 42.02	. . .
105 . . .	31 0.28	+ .02	.513	20 30 29.787	349 45 39.80	+ 34.70	50.88	+72 10 23.62	. . .
106 . . .	40 18.286	+ 1.212	.526	20 39 48.972	251 58 11.96	− 97.40	50.88	−25 39 16.32	. . .
108 . . .	47 25.364	+ 1.113	.536	20 46 55.941	268 13 46.19	− 52.92	50.88	− 9 32 57.61	. . .
Br. 2777 . . .	21 8 11.29	− .47	.565	21 7 40.26	——			+77 41 ——	. . .
110 . .	13 44.873	− .795	.574	21 13 15.094	316 32 51.55	+ 1.40	50.88	+38 57 2.07	. . .
1 H. Draco. S. P.	22 16.34	+ 3.43	.585	9 21 49.19	15 46 39.29	+ 89.12	50.88	+81 47 42.47	(24.34)
112 . . .	32 35.915	+ 1.106	.600	21 32 6.421	269 16 50.22	− 51.00	50.88	− 8 19 51.66	. . .
ε Pegasi	39 28.164	+ 1.008	.609	21 38 58.563	286 59 35.73	− 26.46	50.88	+ 9 23 18.39	25.62
113 . . .	48 0.406	+ 1.140	.622	21 47 30.924	263 33 44.58	− 62.35	50.88	− 14 3 8.65	. . .
24 Cephei . . .	22 8 18.41	+ .05	.650	22 7 47.81	349 24 21.71	+ 34.23	50.88	+71 49 5.06	26.27
γ Aquarii . . .	16 40.408	+ 1.070	.663	22 16 10.815	275 41 10.75	− 40.73	50.88	− 1 55 20.86	26.08
9 H. Draco. S. P.	26 27.89	+ 2.46	.677	10 25 59.67	——			+76 15 ——	. . .
λ Aquarii . . .	47 34.679	+ 1.106	.707	22 47 5.078	269 28 1.07	− 50.66	50.88	− 8 8 40.47	25.84
α Pegasi . . .	59 58.413	+ .977	.724	22 59 28.666	292 14 15.21	− 20.86	50.88	+14 38 3.47	26.39
γ Piscium . . .	23 12 9.829	+ 1.044	−30.741	23 11 40.132	280 18 34.76	− 34.42	50.88	+ 2 42 9.46	26.05

c −ˢ.003 c' −ˢ.020 ΔT −30ˢ.554 Nadir 134° 56′ 16″.82 t 51.0
b + .665 at 21ʰ 00ᵐ Equator 277 35 50.88 B 25.81
a + .909 ρ −.085 T 51

SEPTEMBER 14, 1893. CIR. E, WT. 3, OBSR T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
λ Aquilae . . .	19 1 7.600	+ 1.088	−32.083	19 0 36.605	272 34 3.13	− 44.90	50.87	− 5 2 32.64	25.22
ω Aquilae . . .	13 20.948	+ .994	.103	19 12 49.839	289 0 30.55	− 23.94	50.87	+11 24 15.74	25.94
δ Aquilae . . .	20 39.585	+ 1.046	.115	19 20 8.516	280 30 34.96	− 33.74	50.87	+ 2 54 10.35	25.67
λ Urs. Min. . .	30 51.43	−18.52	.131	19 30 0.78	6 33 25.37	+ 62.05	50.87	+88 58 36.55	25.34
γ Aquilae . . .	41 43.784	+ 1.005	.151	19 41 12.638	287 57 33.24	− 25.07	50.87	+10 21 17.30	25.75
Gr. 1374 S. P . .	47 55.23	+ 2.33	.161	7 47 25.40	23 21 46.41	+123.61	50.87	+74 12 0.85	25.76
102 . . .	56 38.827	+ 1.247	.174	19 56 7.900	249 37 10.23	−106.56	50.87	− 28 0 27.20	. . .
Br. 1147 S. P. .	20 6 37.42	+ 2.53	.189	8 6 7.76	——			+76 4 ——	. . .
χ Cephei	13 3.14	− .54	.200	20 12 30.40	354 58 44.20	+ 41.34	50.87	+77 23 34.67	25.46
ε Delphini . . .	28 39.792	+ 1.009	.226	20 28 8.575	288 32 49.47	− 24.42	50.87	+10 56 34.18	24.73
107 . . .	42 39.429	+ 1.112	.248	20 42 8.293	272 11 34.69	− 45.45	50.87	− 5 25 1.63	. . .
109 . . .	21 0 30.155	+ 1.195	.278	20 59 59.072	259 57 38.18	− 70.05	50.87	−17 39 22.74	. . .
111 . . .	21 35.69	− 5.28	.314	21 20 58.096	4 10 44.23	+ 56.97	50.87	+86 35 50.33	. . .
ε Pegasi	39 29.884	+ 1.030	.341	21 38 58.573	286 59 34.75	− 26.06	50.87	+ 9 23 17.82	26.03
114 . . .	52 6.95	− .19	.362	21 51 34.398	350 47 16.34	+ 35.48	50.87	+73 12 0.95	. . .
9 H. Draco. S. P.	22 26 29.30	+ 2.73	.420	10 25 59.61	——			+76 15 ——	. . .
λ Aquarii . . .	47 36.400	+ 1.161	.453	22 47 5.108	269 27 59.71	− 49.71	50.87	− 8 8 40.87	25.96
α Pegasi	23 0 0.170	+ 1.006	−32.473	22 59 28.703	292 14 15.05	− 20.46	50.87	+14 38 3.72	26.02

c ˢ.000 c' −ˢ.017 ΔT −32ˢ.277 Nadir 134° 56′ 16″.53 t 58.0
b + .658 at 21ʰ 00ᵐ Equator 277 35 50.87 B 25.80
a + .950 at 21ʰ.0 Rate +ˢ.02 ρ −.098 T 58

SEPTEMBER 15, 1893. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
λ Aquilae	19 1 8.985	+ 1.119	− 33.514	19 0 36.590	272 34 3.40	− 45.12	51.13	− 5 2 32.85	25.62
ω Aquilae	13 22.257	+ 1.019	.528	19 12 49.748	289 0 31.79	− 24.06	51.13	+ 11 24 16.60	25.30
δ Aquilae	20 40.993	+ 1.070	.535	19 20 8.528	280 30 35.75	− 33.91	51.13	+ 2 54 10.71	25.52
λ Urs. Min.	30 52.53	− 18.72	.546	19 30 0.28	6 33 25.49	+ 62.38	51.13	+ 88 58 36.74	25.52
Gr. 1374 S. P.	47 56.73	+ 2.35	.566	7 47 25.51	23 21 46.76	+ 124.28	51.13	+ 74 12 0.09	25.41
103	59 29.722	+ 1.046	.579	19 58 57.189	284 35 2.66	− 28.99	51.13	+ 6 58 42.54	. . .
9 Aquilae	20 6 22.150	+ 1.094	.586	20 5 49.658	276 28 17.49	− 39.40	51.13	− 1 8 13.04	25.88
104	21 47.282	+ 1.202	.603	20 21 14.881	259 3 22.47	− 72.89	51.13	− 18 33 41.55	. . .
105	31 3.31	.00	.613	20 30 29.70	349 45 41.00	+ 34.42	51.13	+ 72 10 24.29	. . .
106	40 21.222	+ 1.251	.623	20 39 48.850	251 58 11.15	− 96.61	51.13	− 25 39 16.59	. . .
108	47 28.378	+ 1.145	.631	20 46 55.892	268 13 46.37	− 52.49	51.13	− 9 22 57.25	. . .
Br. 2777	21 8 14.21	− .52	.654	21 7 40.04	355 16 57.07	+ 42.02	51.13	+ 77 41 47.96	25.26
110	13 47.923	+ .808	.660	21 13 15.071	316 32 52.24	+ 1.39	51.13	+ 38 57 2.50	. . .
1 H. Draco. S. P.	22 19.31	+ 3.57	.669	9 21 49.21	15 46 41.11	+ 88.41	51.13	+ 81 47 41.61	24.07
112	32 38.893	+ 1.138	.680	21 32 6.351	269 16 50.54	− 50.60	51.13	− 8 19 51.19	. . .
ε Pegasi	39 31.178	+ 1.032	.689	21 38 58.522	286 59 35.64	− 26.26	51.13	+ 9 23 18.25	25.87
113	48 3.513	+ 1.174	.698	21 47 30.989	263 33 44.75	− 61.86	51.13	− 14 3 8.24	. . .
24 Cephei	22 8 21.35	+ .03	.720	22 7 47.66	349 24 23.12	+ 33.97	51.13	+ 71 49 5.96	26.00
γ Aquarii	16 43.429	+ 1.099	.730	22 16 10.798	275 41 10.54	− 40.42	51.13	− 1 55 21.01	26.23
9 H. Draco. S. P.	26 30.80	+ 2.55	.740	10 25 59.61	——			+ 76 15 ——	. . .
λ Aquarii	47 37.729	+ 1.138	.763	22 47 5.104	269 28 1.33	− 50.28	51.13	− 8 8 40.08	25.36
α Pegasi	23 0 1.496	+ 1.000	− 33.777	22 59 28.719	292 14 15.21	− 20.71	51.13	+ 14 38 3.37	26.69

c + s.003 *c′* − s.014 ΔT − 33s.645 Nadir 134° 56′ 16″.94 *t* 55.2
b + .670 at 21h 00m Equator 277 35 51 .13 B 25.83
a + .939 ρ − .066 T 57

SEPTEMBER 20, 1893. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
λ Aquilae	19 1 32.443	+ .970	− 56.917	19 0 36.496	272 34 3.99	− 45.98	50.84	− 5 2 32.83	26.37
ω Aquilae	13 45.742	+ .911	.927	19 12 49.726	289 0 31.77	− 24.56	50.84	+ 11 24 16.37	26.48
δ Aquilae	21 4.436	+ .946	.931	19 20 8.448	280 30 36.01	− 34.63	50.84	+ 2 54 10.54	26.56
λ Urs. Min.	31 3.17	− 13.03	.939	19 29 53.20	6 33 25.88	+ 63.78	50.84	+ 88 58 38.82	24.95
γ Aquilae	42 8.592	+ .922	.948	19 41 12.566	287 57 34.34	− 25.79	50.84	+ 10 21 17.71	26.57
Gr. 1374 S. P.	48 21.03	+ 1.90	.953	7 47 25.98	23 21 42.14	+ 127.29	50.84	+ 74 12 (1.41)	(28.35)
102	57 3.777	+ 1.087	.960	19 56 7.904	249 37 11.79	− 109.82	50.84	− 28 0 28.87	. . .
Br. 1147 S. P.	20 7 3.36	+ 2.06	.967	8 6 8.45	21 29 8.27	+ 116.25	50.84	+ 76 4 46.32	27.02
χ Cephei	13 27.01	− .20	.972	20 12 29.84	354 58 44.63	+ 42.60	50.84	+ 77 23 36.39	25.96
ε Delphini	29 4.649	+ .930	.985	20 28 8.593	288 32 50.35	− 25.16	50.84	+ 10 56 34.35	25.91
107	43 4.379	+ 1.005	.995	20 42 8.389	272 11 35.53	− 46.81	50.84	− 5 25 2.12	. . .
109	21 0 55.012	+ 1.067	− 57.009	20 59 59.070	259 57 39.49	− 72.15	50.84	− 17 39 23.50	. . .
111	21 56.98	− 3.91	.024	21 20 56.05	4 10 45.51	+ 58.72	50.84	+ 86 35 53.39	. . .
ε Pegasi	39 54.635	+ .955	.039	21 38 58.552	286 59 36.30	− 26.88	50.84	+ 9 23 18.58	26.73
114	52 31.26	+ .01	.047	21 51 34.22	350 47 17.86	+ 36.60	50.84	+ 73 12 3.62	. . .
24 Cephei	22 8 44.58	+ .08	.061	22 7 47.60	349 24 25.11	+ 34.76	50.84	+ 71 49 9.03	25.30
γ Aquarii	17 6.772	+ 1.021	.068	22 16 10.725	275 41 11.79	− 41.36	50.84	− 1 55 20.41	26.50
9 H. Draco. S. P.	26 54.69	+ 2.36	.075	10 25 59.98	21 18 19.22	+ 115.06	50.84	+ 76 15 36.56	25.09
λ Aquarii	48 1.158	+ 1.064	.091	22 47 5.131	269 28 1.54	− 51.36	50.84	− 8 8 40.66	26.67
α Pegasi	23 0 24.883	+ .945	− 57.100	22 59 28.728	292 14 17.15	− 21.13	50.84	+ 14 38 5.18	26.27

c − s.013 *c′* − s.030 ΔT − 57s.008 Nadir 134° 56′ 17″.29 *t* 43.3
b + .656 at 21h 00m Equator 277 35 50 .84 B 25.78
a + .820 at 21h.0 Rate + s.03 ρ − .046 Clock 3 T 45

SEPTEMBER 22, 1893. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
λ Aquilae	19 1 33.558	+ 1.078	− 58.145	19 0 36.491	272 34 3.60	− 44.80	50.75	− 5 2 31.95	25.15
ω Aquilae	13 46.899	+ .987	.152	19 12 49.734	289 0 31.14	− 23.90	50.75	+ 11 24 16.49	26.05
δ Aquilae	21 5.517	+ 1.037	.157	19 20 8.397	280 30 35.17	− 33.70	50.75	+ 2 54 10.72	26.06
λ Urs. Min	31 5.87	− 18.35	.164	19 29 49.36	6 33 27.02	+ 62.01	50.75	+ 88 58 38.28	25.42
Gr. 1374 S. P.	48 21.89	+ 2.42	.176	7 47 26.13	23 21 48.73	+ 123.58	50.75	+ 74 11 58.44	25.34
103	59 54.272	+ 1.021	.183	19 58 57.110	284 35 2.59	− 28.83	50.75	+ 6 58 43.01	. . .
9 Aquilae	20 6 46.636	+ 1.068	.187	20 5 49.517	276 28 16.39	− 39.11	50.75	− 1 8 13.47	26.84
104	22 11.846	+ 1.174	.197	20 21 14.823	259 3 21.76	+ 72.54	50.75	− 18 33 41.53	. . .
105	31 27.54	− .04	.203	20 30 29.30	349 45 41.80	+ 34.25	50.75	+ 72 10 25.30	. . .
106	40 45.836	+ 1.228	.209	20 39 48.855	251 58 10.46	− 96.13	50.75	− 25 39 16.42	. . .
108	47 52.992	+ 1.127	.215	20 46 55.904	268 13 45.58	− 52.24	50.75	− 9 22 57.41	. . .
Br. 2777	21 8 38.36	− .61	.228	21 7 39.52	355 16 59.37	+ 41.81	50.75	+ 77 41 50.43	25.17
1 H. Draco. S. P.	22 44.94	+ 3.72	.238	9 21 50.42	15 46 43.41	+ 87.97	50.75	+ 81 47 39.37	24.29
112	33 3.508	+ 1.132	.242	21 32 6.398	269 16 49.33	− 50.34	50.75	− 8 19 51.76	. . .
ε Pegasi	39 55.792	+ 1.044	.248	21 38 58.588	286 59 35.45	− 26.12	50.75	+ 9 23 18.58	26.54
113	48 28.041	+ 1.171	.254	21 47 30.958	263 33 43.91	− 61.52	50.75	− 14 3 8.36	. . .
24 Cephei	22 8 45.94	− .07	.267	22 7 47.60	349 24 25.43	+ 33.76	50.75	+ 71 49 8.44	26.17
γ Aquarii	17 7.958	+ 1.101	.273	22 16 10.786	275 41 10.12	− 40.16	50.75	− 1 55 20.79	26.59
9 H. Draco. S. P.	26 55.80	+ 2.73	.278	10 26 0.25	21 18 22.21	+ 111.71	50.75	+ 76 15 36.83	25.67
λ Aquarii	48 2.257	+ 1.150	.293	22 47 5.114	269 28 0.50	− 49.93	50.75	− 8 8 40.18	25.84
α Pegasi	23 0 26.027	+ 1.001	− 58.300	22 59 28.728	292 14 16.47	− 20.56	50.75	+ 14 38 5.16	26.18

c − ˢ.013 *c′* − ˢ.030 ΔT − 58ˢ.222 Nadir 134° 56′ 16″.91 *t* 57.5
b + .671 at 21ʰ 00ᵐ Equator 277 35 50 .75 B 25.80
a + .940 at 21ʰ.0 Rate + ˢ.02 *ρ* − .039 Clock 3. T 59

SEPTEMBER 25, 1893. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
λ Aquilae	19 1 22.258	+ 1.027	− 46.850	19 0 36.435	272 34 2.22	− 44.95	50.90	− 5 2 33.63	26.93
ω Aquilae	13 35.578	+ .970	.860	19 12 49.688	289 0 31.15	− 23.97	50.90	+ 11 24 16.28	26.41
δ Aquilae	20 54.272	+ .990	.866	19 20 8.396	280 30 35.37	− 33.77	50.90	+ 2 54 10.70	26.20
λ Urs. Min.	30 49.03	− 14.74	.874	19 29 47.42	6 33 27.61	+ 62.12	50.90	+ 88 58 38.83	25.37
γ Aquilae	41 58.364	+ .956	.883	19 41 12.437	287 57 33.64	− 25.08	50.90	+ 10 21 17.74	26.43
Gr. 1374 S. P.	48 11.46	+ 2.01	.889	7 47 26.58	——			+ 74 11 ——	. . .
102	56 53.570	+ 1.138	.895	19 56 7.813	249 37 9.39	− 106.62	50.90	− 28 0 28.13	. . .
χ Cephei	20 13 16.52	− .23	.909	20 12 29.38	354 58 46.95	+ 41.35	50.90	+ 77 23 37.40	25.71
107	42 54.108	+ 1.028	.933	20 42 8.203	272 11 34.32	− 45.45	50.90	− 5 25 2.03	. . .
109	21 0 44.897	+ 1.085	.948	20 59 59.034	259 57 37.42	− 70.10	50.90	− 17 39 23.58	. . .
110	14 1.125	+ .788	.958	21 13 14.955	316 32 54.08	+ 1.38	50.90	+ 38 57 4.56	. . .
111	21 45.57	− 3.73	.964	21 20 54.88	4 10 48.58	+ 57.07	50.90	+ 86 35 54.75	. . .
ε Pegasi	39 44.507	+ .960	.979	21 38 58.488	286 59 36.22	− 26.12	50.90	+ 9 23 19.20	26.21
114	52 20.95	+ .09	.990	21 51 34.05	350 47 20.43	+ 35.56	50.90	+ 73 12 5.09	. . .
24 Cephei	22 8 34.29	+ .17	− 47.002	22 7 47.46	349 24 26.88	+ 33.77	50.90	+ 71 49 9.75	25.87
γ Aquarii	16 56.750	+ 1.012	.009	22 16 10.753	275 41 11.10	− 40.16	50.90	− 1 55 19.96	25.86
9 H. Draco. S. P.	26 45.01	+ 2.18	.017	10 26 0.17	21 18 23.90	+ 111.71	50.90	+ 76 15 35.29	25.29
λ Aquilae	47 51.143	+ 1.041	.035	22 47 51.149	269 28 0.35	− 49.92	50.90	− 8 8 40.47	26.37
α Pegasi	23 0 14.820	+ .936	− 47.045	22 59 28.711	292 14 17.11	− 20.56	50.90	+ 14 38 5.65	26.09

c − ˢ.006 *c′* − ˢ.023 ΔT − 46ˢ.947 Nadir 134° 56′ 17″.21 *t* 58.2
b + .659 at 21ʰ 00ᵐ Equator 277 35 50 .90 B 25.84
a + .828 *ρ* − .049 T 59

OCTOBER 2, 1893. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ε Aquarii . . .	20 42 50.871	+1.082	−56.196	20 41 55.757	267 43 37.50	− 53.28	51.70	− 9 53 7.48	25.06
76 Draco. . . .	51 15.38	−1.14	.204	20 50 18.04	359 43 26.73	+ 48.96	51.70	+82 8 23.99	25.30
α Equulei . . .	21 11 26.343	+1.010	.222	21 10 31.131	282 24 55.27	− 31.49	51.70	+ 4 48 32.08	26.18
1 H. Draco. S. P.	22 44.66	+3.18	.232	9 21 51.61	15 46 45.96	+ 88.24	51.70	+81 47 37.50	24.84
β Cephei . . .	28 14.35	+ .22	.239	21 27 18.33	347 41 8.06	+ 31.77	51.70	+70 5 48.13	25.41
ε Pegasi . . .	39 53.707	+ .989	.249	21 38 58.447	286 59 37.33	− 26.19	51.70	+ 9 23 19.44	25.84
Gr. 1586 S. P. .	49 44.76	+2.08	.259	9 48 50.58	24 10 41.90	+129.18	51.70	+73 23 0.62	25.17
115 . .	22 2 28.609	+1.319	.270	22 1 33.658	230 15 1.70	−474.91	51.70	−47 28 44.91	. . .
9 Aquarii . . .	12 9.515	+1.074	.279	22 11 14.310	269 17 57.81	− 50.35	51.70	− 8 18 44.24	25.62
116 . .	20 46.936	+1.032	.287	22 19 51.649	278 26 48.07	− 36.44	51.70	+ 0 50 19.93	. . .
118 . .	31 22.66	− .13	.297	22 30 26.23	353 16 3.24	+ 38.95	51.70	+75 40 50.49	. . .
α Pegasi . . .	23 0 24.065	+ .965	.324	22 59 28.706	292 14 18.59	− 20.64	51.70	+14 38 6.25	25.68
119 . .	9 45.279	+1.068	.332	23 8 50.015	270 59 23.57	− 47.53	51.70	− 6 37 15.66	. . .
121 . .	23 30.750	+1.007	.346	23 22 35.411	283 24 9.67	− 30.39	51.70	+ 5 47 47.68	. . .
ι Piscium . . .	35 25.300	+1.009	.357	23 34 29.952	282 39 29.58	− 31.19	51.70	+ 5 3 6.69	25.11
124 . .	50 38.08	+ .01	.371	23 49 41.72	351 24 28.26	+ 36.50	51.70	+73 49 13.06	. . .
126 . .	59 14.166	+1.123	.379	23 58 18.910	259 41 27.64	− 71.07	51.70	−17 55 35.13	. . .
4 H. Draco. S. P.	0 8 3.49	+2.52	.387	12 7 9.62	19 21 45.62	+102.79	51.70	+78 12 23.29	23.89
12 Ceti	25 33.293	+1.057	.404	0 24 37.946	273 4 2.25	− 44.30	51.70	− 4 32 33.75	25.72
21 Cassiop. . . .	39 36.55	− .03	.417	0 38 40.10	351 59 41.95	+ 37.32	51.70	+74 24 27.57	25.67
ε Piscium . . .	58 21.880	+1.000	−56.435	0 57 26.445	——			+ 7 19 ——	. . .

c −s.013 c' −s.030 ΔT −56s.324 Nadir 134° 56′ 17″.30 t 59.0
b + .680 at 23h 00m Equator 277 35 51 .70 B 25.97
a + .864 ρ −.056 T 60

OCTOBER 3, 1893. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ε Aquarii . . .	20 42 52.186	+ .992	−57.393	20 41 55.785	267 43 36.53	− 53.60	50.73	− 9 53 7.80	25.87
76 Draco. . . .	51 15.96	− .63	.407	20 50 17.94	359 43 25.78	+ 49.26	50.73	+82 8 24.31	25.66
α Equulei . . .	21 11 27.572	+ .951	.438	21 10 31.085	282 24 55.00	− 31.70	50.73	+ 4 48 32.57	26.23
1 H. Draco. S. P.	22 46.68	+2.60	.453	9 21 51.83	15 46 44.92	+ 88.86	50.73	+81 47 36.95	25.05
β Cephei	28 15.52	+ .35	.462	21 27 18.41	——			+70 5 ——	. . .
ε Pegasi	39 54.957	+ .946	.480	21 38 58.423	286 59 36.95	− 26.40	50.73	+ 9 23 19.82	26.00
Gr. 1586 S. P. .	49 46.38	+1.81	.495	9 48 50.70	24 10 40.82	+130.39	50.73	+73 22 59.52	24.85
115 . .	22 2 29.909	+1.226	.513	22 1 33.622	230 15 7.68	−480.39	50.73	−47 28 43.44	. . .
9 Aquarii . . .	12 10.843	+1.028	.528	22 11 14.343	269 17 56.59	− 50.89	50.73	− 8 18 45.03	26.91
116 . .	20 48.233	+ .998	.541	22 19 51.690	278 26 47.29	− 36.83	50.73	+ 0 50 19.73	. . .
118 . .	31 23.74	+ .04	.557	22 30 26.22	353 16 3.46	+ 39.34	50.73	+75 40 52.07	. . .
α Pegasi	23 0 25.398	+ .956	.601	22 59 28.753	292 14 18.24	− 20.81	50.73	+14 38 6.70	25.85
119 . .	9 46.579	+1.051	.615	23 8 50.015	270 59 22.72	− 47.92	50.73	− 6 37 15.87	. . .
121 . .	23 32.086	+1.004	.636	23 22 35.454	283 24 9.70	− 30.55	50.73	+ 5 47 48.42	. . .
ι Piscium . . .	35 26.472	+1.010	.653	23 34 29.829	282 39 29.30	− 31.47	50.73	+ 5 3 7.10	25.32
124 . .	50 39.22	+ .11	.675	23 49 41.66	351 24 27.14	+ 36.81	50.73	+73 49 13.22	. . .
126 . .	59 15.555	+1.126	.690	23 58 18.991	259 41 26.78	− 71.62	50.73	−17 55 35.57	. . .
4 H. Dr. S. P. (1)	0 8 4.79	+2.41	.702	12 7 9.50	19 21 45.00	+103.51	50.73	+78 12 22.22	23.70
12 Ceti	25 34.600	+1.076	.729	0 24 37.947	273 4 1.47	− 44.54	50.73	− 4 32 33.80	26.25
21 Cassiop. . . .	39 37.61	+ .05	.750	0 38 39.91	351 59 41.91	+ 37.51	50.73	+74 24 28.69	25.47
ε Piscium . . .	58 23.272	+1.033	−57.777	0 57 26.528	284 55 32.27	− 28.70	50.73	+ 7 19 12.84	26.36

(1) Telescope shaken by wind?

c −s.003 c' −s.020 ΔT −57s.574 Nadir 134° 56′ 16″.83 t 53.5
b + .680 at 23h.0 Rate +s.01 at 22h 42m Equator 277 35 50 73 B 25.88
a + .820 at 23 .0 Rate + .03 ρ −.090 T 55

OCTOBER 5, 1893. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
ε Delphini	20 29 7.485	+ .946	−60.159	20 28 8.272	288 32 51.03	− 24.44	51.01	+10 56 35.58	24.94
ε Aquarii	42 54.885	+ 1.038	.174	20 41 55.749	267 43 36.38	− 53.15	51.01	− 9 53 7.78	25.60
76 Draco.	51 18.76	− .96	.183	20 50 17.62	359 43 26.82	+ 48.82	51.01	+82 8 24.63	25.46
α Equulei	21 11 30.286	+ .979	.204	21 10 31.061	282 24 54.91	− 31.36	51.01	+ 4 48 32.54	26.10
1 H. Draco. S. P.	22 49.34	+ 2.98	.216	9 21 52.10	15 46 46.51	+ 88.05	51.01	+81 47 36.45	24.80
β Cephei	28 18.17	+ .25	.222	21 27 18.20	347 41 8.30	+ 31.63	51.01	+70 5 48.92	25.56
ε Pegasi	39 57.764	+ .965	.235	21 38 58.494	286 59 37.32	− 26.09	51.01	+ 9 23 20.22	25.48
Gr. 1586 S. P.	49 49.03	+ 2.00	.245	9 48 50.79	24 10 43.37	+128.78	51.01	+73 22 58.86	24.52
115	22 2 32.608	+ 1.293	.259	22 1 33.642	230 14 59.73	−473.84	51.01	−47 28 44.22	. . .
116	20 50.915	+ 1.012	.279	22 19 51.648	278 26 47.05	− 36.37	51.01	+ 0 50 19.67	. . .
118	31 26.51	− .13	.290	22 30 26.09	353 16 3.53	+ 38.85	51.01	+75 40 51.37	. . .
α Pegasi	23 0 28.084	+ .950	.320	22 59 28.714	292 14 17.37	− 20.55	51.01	+14 38 5.81	26.72
119	8 49.350	+ 1.059	.330	23 8 50.079	270 59 22.42	− 47.31	51.01	− 6 37 15.90	. . .
121	23 34.815	+ 1.000	.346	23 22 35.469	283 24 9.74	− 30.14	51.01	+ 5 47 48.59	. . .
ι Piscium	35 29.243	+ 1.005	.359	23 34 29.889	282 39 28.58	− 31.03	51.01	+ 5 3 6.54	25.76
124	50 42.05	− .04	.373	23 49 41.64	351 24 28.73	+ 36.30	51.01	+73 49 14.02	. . .
126	59 18.230	+ 1.132	.383	23 58 18.979	259 41 25.32	− 70.69	51.01	−17 55 36.38	. . .
4 H. Draco. S. P.	0 8 7.48	+ 2.61	.393	12 7 9.70	——			+78 12 ——	. . .
12 Ceti	25 37.322	+ 1.065	.412	0 24 37.975	273 4 1.58	− 44.02	51.01	− 4 32 33.45	25.66
21 Cassiop.	39 40.64	− .13	.428	0 38 40.08	351 59 42.63	+ 37.08	51.01	+74 24 28.70	26.00
ε Piscium	58 25.922	+ 1.007	−60.446	0 57 26.483	284 55 31.58	− 28.36	51.01	+ 7 19 12.21	26.88

c −ˢ.006 c' −ˢ.023 ΔT −60ˢ.288 Nadir 134° 56′ 16″.90 t 60.3
b + .660 at 22ʰ 30ᵐ Equator 277 35 51 .01 B 25.93
a + .844 at 22ʰ.1 Rate +.02 ρ −.064 T 61

OCTOBER 10, 1893. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
ε Aquarii	20 43 1.492	+ .977	−66.851	20 41 55.618	267 43 37.73	− 55.12	50.70	− 9 53 8.09	25.93
76 Draco.	52 24.68	− .97	.861	20 50 16.85	359 43 25.57	+ 50.64	50.70	+82 8 25.51	25.78
α Equulei	21 11 36.986	+ .914	.881	21 10 31.019	282 24 56.10	− 32.57	50.70	+ 4 48 32.83	26.05
1 H. Draco. S. P.	22 56.92	+ 2.82	.893	9 21 52.85	15 46 44.26	+ 91.30	50.70	+81 47 35.14	24.87
β Cephei	28 24.44	+ .22	.899	21 27 17.76	347 41 8.48	+ 32.87	50.70	+70 5 50.65	25.14
ε Pegasi	40 4.421	+ .896	.911	21 38 58.406	286 59 37.55	− 27.11	50.70	+ 9 23 19.74	26.30
Gr. 1586 S. P.	49 56.18	+ 1.85	.921	9 48 51.11	24 10 39.92	+133.84	50.70	+73 22 56.94	24.17
115	22 2 39.266	+ 1.179	.935	22 1 33.510	230 15 13.03	−493.95	50.70	−47 28 51.62	. . .
9 Aquarii	12 20.200	+ .969	.945	22 11 14.224	269 17 58.24	− 52.21	50.70	− 8 18 44.67	26.29
116	20 57.643	+ .934	.954	22 19 51.623	278 26 48.58	− 37.78	50.70	+ 0 50 20.10	. . .
118	31 32.88	− .08	.965	22 30 25.83	353 16 3.72	+ 40.36	50.70	+75 40 53.38	. . .
α Pegasi	23 0 34.732	+ .876	.996	22 59 28.612	292 14 18.79	− 21.35	50.70	+14 38 6.74	26.38
119	9 56.008	+ .964	−67.005	23 8 49.967	270 59 23.85	− 49.15	50.70	− 6 37 16.00	. . .
121	23 41.550	+ .912	.020	23 22 35.442	283 24 10.70	− 31.30	50.70	+ 5 47 48.70	. . .
ι Piscium	35 35.950	+ .914	.032	23 34 29.832	282 39 29.72	− 32.22	50.70	+ 5 3 6.80	25.84
124	50 48.53	+ .04	.048	23 49 41.52	351 24 28.19	+ 37.69	50.70	+73 49 15.18	. . .
126	59 24.890	+ 1.012	.057	23 58 18.845	259 41 26.76	− 73.38	50.70	−17 55 37.32	. . .
4 H. Draco. S. P.	0 8 14.47	+ 2.25	.066	12 7 9.65	——			+78 12 ——	. . .
12 Ceti	25 44.103	+ .955	.085	0 24 37.973	273 4 2.31	− 45.54	50.70	− 4 32 34.10	26.35
21 Cassiop.	39 47.19	+ .01	.100	0 38 40.10	351 59 43.97	+ 38.51	50.70	+74 24 31.78	24.90
ε Piscium	58 32.772	+ .906	−67.119	0 57 26.559	284 55 33.18	− 29.46	50.70	+ 7 19 13.02	26.47

c −ˢ.013 c' −ˢ.030 ΔT −66ˢ.995 Nadir 134° 56′ 16″.90 t 41.5
b + .625 at 23ʰ 00ᵐ Equator 277 35 50 .70 B 25.90
a + .774 ρ −.063 T 42

OCTOBER 11, 1893. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
α Equulei	21 11 38.258	+ .911	−68.168	21 10 31.001	282 24 55.02	− 31.78	50.51	+ 4 48 32.73	26.07
1 H. Draco. S. P.	22 57.58	+ 3.67	.179	9 21 53.07	15 46 47.30	+ 89.05	50.51	+81 47 34.16	24.09
β Cephei	28 26.05	− .08	.184	21 27 17.79	347 41 9.02	+ 32.07	50.51	+70 5 50.58	25.35
ε Pegasi	39 5.671	+ .884	.195	21 38 58.360	286 59 37.00	− 26.45	50.51	+ 9 23 20.04	25.97
Gr. 1586 S. P.	49 57.28	+ 2.28	.206	9 48 51.35	24 10 43.03	+130.53	50.51	+73 22 56.95	24.38
20 Pegasi	57 2.482	+ .867	.213	21 55 55.136	290 12 57.96	− 22.96	50.51	+12 36 44.49	25.27
24 Cephei	22 8 55.28	− .20	.225	22 7 46.86	349 24 30.25	+ 34.22	50.51	+71 49 13.96	26.19
117	26 9.449	+ 1.006	.242	22 25 2.213	266 23 27.63	− 56.34	50.51	−11 13 19.22	. . .
λ Aquarii	48 12.275	+ .987	.264	22 47 5.008	269 27 59.96	− 50.58	50.51	− 8 8 41.13	26.34
α Pegasi	23 0 36.055	+ .853	.277	22 59 28.631	292 14 18.31	− 20.82	50.51	+14 38 6.98	26.15
120	15 25.073	+ .054	.291	23 14 16.836	345 7 18.95	+ 28.96	50.51	+67 31 57.40	. . .
122	29 12.28	− 5.70	.305	23 27 58.28	4 18 16.32	+ 57.96	50.51	+86 43 23.77	. . .
123	39 49.790	+ 1.051	.316	23 38 47.525	258 45 6.51	− 74.19	50.51	−18 51 58.19	. . .
125	57 38.950	+ .978	.334	23 56 31.594	271 0 26.51	− 47.96	50.51	− 6 36 11.96	. . .
4 H. Draco. S. P.	0 8 15.35	+ 2.84	.344	12 7 9.85	19 21 46.69	+103.58	50.51	+78 12 20.24	24.70
12 Ceti	25 45.379	+ .967	.362	0 24 37.984	273 4 0.77	− 44.60	50.51	− 4 32 34.34	26.49
21 Cassiop.	39 48.99	− .40	.376	0 38 40.21	351 59 44.10	+ 37.57	50.51	+74 24 31.16	25.78
ε Piscium	58 34.086	+ .897	.395	0 57 26.588	284 55 32.19	− 28.74	50.51	+ 7 19 12.94	26.52
9 Ceti	1 19 51.181	+ .989	−68.416	1 18 43.754	268 52 56.44	− 51.56	50.51	− 8 43 45.63	26.15

c −ˢ.038 c' −ˢ.055 ΔT −68ˢ.286 Nadir 134° 56′ 16″.63 t 55.6
b +.592 at 23ʰ 10ᵐ Equator 277 35 50 .51 B 26.00
a +.866 ρ −.060 T 55

OCTOBER 12, 1893. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
α Equulei	21 11 39.550	+ .980	−69.584	21 10 30.946	282 24 54.28	− 31.46	50.76	+ 4 48 32.06	26.57
1 H. Draco. S. P.	22 59.30	+ 3.58	.594	9 21 53.29	15 46 48.00	+ 88.14	50.76	+81 47 34.62	24.56
β Cephei	28 27.39	+ .03	.598	21 27 17.76	347 41 9.51	+ 31.74	50.76	+70 5 50.59	25.44
ε Pegasi	40 6.978	+ .952	.607	21 38 58.323	286 59 36.77	− 26.18	50.76	+ 9 23 19.83	26.01
Gr. 1586 S. P.	49 58.58	+ 2.27	.616	9 48 51.23	24 10 44.02	+129.14	50.76	+73 22 57.60	25.09
20 Pegasi	57 3.792	+ .932	.621	21 55 55.103	290 12 57.50	− 22.71	50.76	+12 36 44.03	25.59
24 Cephei	22 8 56.51	− .13	.631	22 7 46.75	349 24 30.85	+ 33.86	50.76	+71 49 13.95	26.25
117	26 10.785	+ 1.068	.645	22 25 2.208	266 23 28.21	− 55.78	50.76	−11 13 18.29	. . .
λ Aquarii	48 13.679	+ 1.049	.664	22 47 5.064	269 28 0.72	− 50.12	50.76	− 8 8 40.16	25.12
α Pegasi	23 0 37.470	+ .915	.675	22 59 28.710	292 14 18.62	− 20.64	50.76	+14 38 7.22	25.79
120	15 26.315	+ .139	.687	23 14 16.765	345 7 19.38	+ 28.69	50.76	+67 31 57.31	. . .
122	29 13.24	− 5.42	.698	23 27 58.12	4 18 17.24	+ 57.40	50.76	+86 43 23.88	. . .
123	39 51.082	+ 1.108	.707	23 38 42.483	258 45 5.48	− 73.46	50.76	−18 51 58.74	. . .
125	57 40.333	+ 1.035	.722	23 56 31.646	271 0 26.31	− 47.47	50.76	− 6 36 11.92	. . .
4 H. Draco. S. P.	0 8 16.91	+ 2.83	.731	12 7 10.01	——			+78 12 ——	. . .
12 Ceti	25 46.672	+ 1.021	.745	0 24 37.948	273 4 0.48	− 44.15	50.76	− 4 32 34.43	26.35
21 Cassiop.	39 50.23	− .32	.757	0 38 40.15	351 59 45.25	+ 37.20	50.76	+74 24 31.69	25.41
ε Piscium	58 35.393	+ .950	.773	0 57 26.570	284 55 32.63	− 28.48	50.76	+ 7 19 13.39	25.90
9 Ceti	1 19 22.515	+ 1.039	−69.791	1 18 43.763	268 52 56.20	− 51.12	50.76	− 8 43 45.68	25.93

c −ˢ.026 c' −ˢ.043 ΔT −69ˢ.682 Nadir 134° 56′ 16″.67 t 58.1
b +.633 at 23ʰ 10ᵐ Equator 277 35 50 .76 B 25.89
a +.893 ρ −.050 T 58

OCTOBER 13, 1893. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
α Equulei . . .	21 11 40.908	+1.032	−71.018	21 10 30.922	282 24 53.58	− 30.98	49.77	+ 4 48 32.83	26.56
1 H. Draco. S. P.	23 0.38	+3.96	.029	9 21 53.31	15 46 48.95	+ 86.82	49.77	+81 47 34.00	24.86
β Cephei . . .	28 28.80	− .03	.034	21 27 17.74	347 41 9.36	+ 31.28	49.77	+70 5 50.87	25.97
ε Pegasi . . .	40 8.368	+1.002	.046	21 38 58.324	286 59 36.06	− 25.80	49.77	+ 9 23 20.49	26.04
Gr. 1586 S. P.	49 59.92	+2.49	.056	9 48 51.35	24 10 46.06	+127.39	49.77	+73 22 56.32	24.78
20 Pegasi . . .	57 5.214	+ .981	.063	21 55 55.132	290 12 56.81	− 22.40	49.77	+12 36 44.64	25.68
24 Cephei . . .	22 8 57.96	− .16	.075	22 7 46.73	349 24 31.42	+ 33.39	49.77	+71 49 15.04	26.09
117 . .	26 12.134	+1.138	.092	22 25 2.180	266 23 25.64	− 54.98	49.77	−11 13 19.11	. . .
λ Aquarii . . .	48 15.058	+1.119	.114	22 47 5.063	269 27 58.13	− 49.38	49.77	− 8 8 41.02	26.59
α Pegasi	23 0 38.821	+ .968	.127	22 59 28.662	292 14 17.13	− 20.33	49.77	+14 38 7.03	26.73
120 . .	15 27.822	+ .105	.140	23 14 16.787	345 7 19.56	+ 28.26	49.77	+67 31 58.05	. . .
122 . .	29 15.12	−6.06	.155	23 27 57.91	4 18 17.77	+ 56.59	49.77	+86 43 24.59	. . .
123 . .	39 52.511	+1.190	.166	23 38 42.535	258 45 4.12	− 72.47	49.77	−18 51 58.12	. . .
125 . .	57 41.700	+1.109	.184	23 56 31.625	271 0 24.28	− 46.87	49.77	− 6 36 12.36	. . .
4 H. Draco. S. P.	0 8 17.97	+3.08	.194	12 7 9.86	19 21 49.51	+101.28	49.77	+78 12 18.98	24.68
12 Ceti	25 48.053	+1.095	.212	0 24 37.936	273 3 59.13	− 43.64	49.77	− 4 32 34.28	26.81
21 Cassiop. . . .	39 51.73	− .38	.226	0 38 40.12	351 59 45.50	+ 36.78	49.77	+74 24 32.51	25.58
ε Piscium . . .	58 36.786	+1.017	.245	0 57 26.558	284 55 31.20	− 28.15	49.77	+ 7 19 13.28	26.71
9 Ceti	1 19 53.957	+1.120	−71.266	1 18 43.811	268 52 53.92	− 50.52	49.77	− 8 43 46.37	27.21

c −ˢ.023	*c′* −ˢ.040	ΔT −1ᵐ 11ˢ.136	Nadir 134° 56′ 16″.31	*t* 64.3
b + .654		at 23ʰ 10ᵐ	Equator 277 35 49 .77	B 25.85
a + .965		ρ −.060		T 65

OCTOBER 17, 1893. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
α Equulei . . .	21 11 16.233	+1.024	−46.319	21 10 30.938	282 24 56.84	− 32.29	50.87	+ 4 48 33.68	25.37
1 H. Draco. S. P.	22 37.02	+3.21	.317	9 21 53.91	15 46 47.15	+ 90.45	50.87	+81 47 33.27	24.80
β Cephei	28 3.57	+ .21	.317	21 27 17.46	347 41 9.74	+ 32.57	50.87	+70 5 51.44	25.87
ε Pegasi . . .	39 43.607	+1.001	.315	21 38 58.293	286 59 37.68	− 26.85	50.87	+ 9 23 19.96	26.39
Gr. 1586 S. P.	49 35.95	+2.09	.314	9 48 51.73	24 10 42.25	+132.45	50.87	+73 22 56.17	25.39
20 Pegasi . . .	56 40.335	+ .985	.313	21 55 55.007	290 12 58.65	− 23.29	50.87	+12 36 44.49	25.71
24 Cephei . . .	22 8 32.63	+ .11	.312	22 7 46.43	349 24 31.79	+ 34.72	50.87	+71 49 15.64	26.19
117 . .	25 47.421	+1.111	.310	22 25 2.222	266 23 29.21	− 57.19	50.87	−11 13 18.85	. . .
λ Aquarii . . .	47 50.305	+1.094	.307	22 47 5.092	269 28 1.73	− 51.38	50.87	− 8 8 40.52	25.66
α Pegasi	23 0 13.984	+ .974	.306	22 59 28.652	292 14 19.32	− 21.16	50.87	+14 38 7.29	26.48
120 . .	15 2.615	+ .313	.304	23 14 16.624	345 7 21.19	+ 29.41	50.87	+67 31 59.73	. . .
122 . .	28 47.40	−4.32	.303	23 27 56.78	4 18 17.93	+ 58.86	50.87	+86 43 25.92	. . .
123 . .	39 27.832	+1.152	.301	23 38 42.683	285 45 7.22	− 75.34	50.87	−18 51 58.99	. . .
125 . .	57 16.850	+1.086	.299	23 56 31.637	271 0 27.05	− 48.70	50.87	− 6 36 12.52	. . .
4 H. Draco. S. P.	0 7 53.67	+2.54	.298	12 7 9.91	19 21 47.38	+105.22	50.87	+78 12 18.27	25.26
12 Ceti	25 23.200	+1.074	.296	0 24 37.978	273 4 1.76	− 45.32	50.87	− 4 32 34.43	26.57
21 Cassiop. . . .	39 26.39	− .05	.294	0 38 40.05	351 59 46.51	+ 38.18	50.87	+74 24 33.82	25.44
ε Piscium . . .	58 11.886	+1.013	.292	0 57 26.607	284 55 33.60	− 29.21	50.87	+ 7 19 13.52	26.34
9 Ceti	1 19 29.021	+1.094	−46.290	1 18 43.825	268 52 56.61	− 52.39	50.87	− 8 43 46.65	26.98

c +ˢ.006	*c′* −ˢ.011	ΔT −46ˢ.305	Nadir 134° 56′ 17″.06	*t* 43.7
b + .664		at 23ʰ 10ᵐ	Equator 277 35 50 .87	B 25.78
a + .881		ρ + .007 Clock No. 3		T 45

NOVEMBER 2, 1893. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
λ Aquarii	22 48 42.093	+ 1.005	−98.238	22 47 4.860	269 28 0.58	− 51.67	51.15	− 8 8 42.24	26.00
π Cephei	23 6 9.92	− .11	.253	23 4 31.56	352 24 13.14	+ 38.96	51.15	+74 49 0.95	26.44
γ Piscium	13 17.322	+ .951	.260	23 11 40.013	280 18 37.08	− 35.11	51.15	+ 2 42 10.82	25.32
λ Draco. S. P.	26 41.04	+ 1.79	.272	11 25 4.56	27 38 17.65	+161.40	51.15	+69 54 52.10	25.47
ι Piscium	36 7.079	+ .940	.281	23 34 29.738	282 39 30.07	− 32.10	51.15	+ 5 3 6.82	25.58
ω Piscium	55 29.372	+ .935	.300	23 53 52.007	283 52 58.37	− 30.59	51.15	+ 6 16 36.63	25.93
127	0 1 31.893	+ .995	.305	23 59 54.583	271 18 35.38	− 48.38	51.15	− 6 18 4.15	. . .
4 H. Draco. S. P.	8 46.87	+ 2.35	.312	12 7 10.91	19 21 52.65	+105.61	51.15	+78 12 12.89	25.22
No. 2	21 35.536	+ .959	.324	0 19 58.171	278 57 38.29	− 36.83	51.15	+ 1 21 10.31	. . .
4	31 25.022	+ .985	.332	0 29 47.675	273 26 1.44	− 44.87	51.15	− 4 10 34.58	. . .
6	44 26.879	+ .941	.346	0 42 49.474	282 20 34.05	− 32.43	51.15	+ 4 44 10.47	. . .
43 H. Cephei	56 3.54	− 2.96	.356	0 54 22.22	3 16 18.54	+ 56.93	51.15	+85 41 24.32	25.91
8	1 2 50.986	+ .565	.362	1 1 13.189	331 59 44.65	+ 15.57	51.15	+54 24 9.07	. . .
10	24 59.452	+ .181	.382	1 23 21.251	347 18 33.75	+ 32.14	51.15	+69 43 14.74	. . .
11	32 12.314	+ .719	.389	1 30 34.644	318 28 25.39	+ 3.13	51.15	+40 52 37.37	. . .
ν Piscium	37 32.616	+ .940	.393	1 35 55.163	282 33 32.09	− 32.15	51.15	+ 4 57 8.79	25.74
ξ Piscium	49 41.808	+ .951	.407	1 48 4.353	280 16 22.05	− 35.06	51.15	+ 2 39 55.84	25.73
4 Urs. Min. S. P.	2 10 48.04	+ 2.37	.425	14 9 11.99	19 31 23.47	+106.17	51.15	+78 2 41.51	25.02
ξ 2 Ceti	24 9.165	+ .926	.438	2 22 31.653	285 35 31.33	− 28.49	51.15	+ 7 59 11.69	25.97
36 H. Cassiop.	29 36.89	+ .04	.444	2 27 58.49	349 56 35.25	+ 35.48	51.15	+72 21 19.58	26.07
δ Ceti	35 40.843	+ .965	−98.449	2 34 3.359	277 28 53.02	− 38.80	51.15	− 0 7 36.93	24.80

c ˢ.000 c' −ˢ.017 ΔT −1ᵐ 38ˢ.347 Nadir 134° 56′ 16″.79 t 44.3
b + .612 at 0ʰ 45ᵐ Equator 277 35 51 .15 B 25.89
a + .816 ρ −.056 T 43

NOVEMBER 3, 1893. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R .A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ″ ′	″	″	° ′ ″	″
λ Aquarii	22 48 43.320	+ 1.052	−99.552	22 47 4.820	269 28 0.11	− 51.12	51.06	− 8 8 42.07	25.66
α Pegasi	23 1 7.098	+ .932	.563	22 59 28.467	———			+14 38 ———	. . .
π Cephei	6 11.26	− .15	.567	23 4 31.54	352 24 14.07	+ 38.55	51.06	+74 49 1.56	25.90
γ Piscium	13 18.550	+ .996	.574	23 11 39.972	280 18 36.22	− 34.74	51.06	+ 2 42 10.42	25.56
λ Draco. S. P.	26 42.52	+ 1.91	.586	11 25 4.84	27 38 18.98	+159.72	51.06	+69 54 52.36	25.90
ι Piscium	36 8.379	+ .983	.596	23 34 29.766	282 39 29.68	− 51.77	51.06	+ 5 3 6.85	25.42
ω Piscium	55 30.686	+ .977	.613	23 53 52.050	283 52 57.80	− 30.29	51.06	+ 6 16 35.45	25.99
127	0 1 33.293	+ 1.042	.618	23 59 54.717	271 18 35.23	− 47.91	51.06	− 6 18 3.74	. . .
4 H. Draco. S. P.	8 48.21	+ 2.55	.625	12 7 11.14	19 21 54.02	+104.59	51.06	+78 12 12.45	25.00
No. 2	21 36.900	+ 1.002	.636	0 19 58.266	278 57 38.03	− 36.48	51.06	+ 1 21 10.48	. . .
4	31 26.350	+ 1.031	.645	0 29 47.736	273 26 0.74	− 44.45	51.06	− 4 10 34.77	. . .
6	44 28.179	+ .985	.658	0 42 49.506	282 20 33.93	− 32.14	51.06	+ 4 44 10.73	. . .
43 H. Cephei	56 5.28	− 3.22	.666	0 54 22.39	3 16 19.29	+ 56.40	51.06	+85 41 24.63	25.89
8	1 2 52.265	+ .582	.674	1 1 13.173	331 59 45.01	+ 15.42	51.06	+54 24 9.37	. . .
10	25 0.775	+ .167	.696	1 23 21.246	347 18 34.21	+ 31.82	51.06	+69 43 14.97	. .
11	32 13.567	+ .745	.702	1 30 34.610	318 28 26.30	+ 3.10	51.06	+40 52 38.34	. . .
ν Piscium	36 33.829	+ .983	.706	1 35 55.106	282 33 31.69	− 31.81	51.06	+ 4 57 8.82	25.57
ξ Piscium	49 43.136	+ .996	.717	1 47 4.415	280 16 21.38	− 34.68	51.06	+ 2 39 55.64	25.78
4 Urs. Min. S. P.	2 10 49.22	+ 2.54	.737	14 9 12.02	19 31 25.00	+105.05	51.06	+78 2 41.01	24.83
ξ 2 Ceti	24 10.415	+ .968	.750	2 22 31.633	285 35 31.24	− 28.22	51.06	+ 7 59 11.96	25.58
36 H. Cassiop.	29 38.35	+ .01	.754	2 27 58.61	349 56 36.52	+ 35.16	51.06	+72 21 20.62	25.27
δ Ceti	35 42.086	+ 1.010	−99.761	2 34 3.335	277 28 52.43	− 38.47	51.06	− 0 7 37.10	24.79

c −ˢ.006 c' −ˢ.023 ΔT −1ᵐ 39ˢ.647 Nadir 134° 56′ 16″.61 t 49.8
b + .642 at 0ʰ 33ᵐ Equator 277 35 51 .06 B 25.93
a + .861 ρ −.055 T 50

NOVEMBER 7, 1893. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
α Pegasi	23 1 12.398	+ .925	− 104.927	22 59 28.396	292 14 19.20	− 21.05	50.35	+14 38 7.80	26.01
γ Piscium	13 23.929	+ .995	.937	23 11 39.987	280 18 34.78	− 34.75	50.35	+ 2 42 9.68	26.10
λ Draco. S. P.	26 47.90	+1.98	.948	11 25 4.93	27 38 19.29	+159.79	50.35	+69 54 51.27	25.92
γ Cephei	36 45.50	− .47	.956	23 35 0.07	354 37 46.64	+ 41.77	50.35	+77 2 38.06	24.08
ω Piscium	55 36.000	+ .975	.972	23 53 52.003	283 52 57.26	− 30.33	50.35	+ 6 16 36.58	25.67
γ Pegasi	0 9 30.527	+ .925	.984	0 7 46.468	292 11 54.49	− 21.11	50.35	+14 35 43.03	25.38
No. 1	14 31.376	+ .768	.988	0 12 47.156	313 47 50.61	− 1.00	50.35	+36 11 59.26	. . .
3	22 47.413	+1.303	.995	0 21 3.721	234 47 25.58	− 279.85	50.35	−42 53 4.62	. . .
5	33 38.379	+1.160	− 105.004	0 31 54.535	252 16 20.41	− 97.07	50.35	−25 21 7.01	. . .
7	45 42.257	+ .728	.014	0 43 57.971	318 6 1.20	+ 2.79	50.35	+40 30 13.64	. . .
9	1 14 4.129	+ .993	.038	1 12 20.084	280 39 49.75	− 34.36	50.35	+ 3 3 25.04	. . .
Gr. 2001 S. P.	25 6.14	+2.16	.046	13 23 23.25	24 37 9.34	+135.18	50.35	+72 56 25.83	25.17
12	33 13.000	+ .944	.054	1 31 28.890	289 12 16.97	− 24.32	50.35	+11 36 2.30	. . .
ξ Piscium	49 48.422	+ .995	.068	1 48 4.349	280 16 20.96	− 34.90	50.35	+ 2 39 55.71	25.43
50 Cassiop.	56 9.02	− .03	.073	1 54 23.92	349 29 52.43	+ 34.76	50.35	+71 54 36.84	25.22
13	2 9 7.308	+ .963	.084	2 7 23.187	285 57 22.01	− 27.94	50.35	+ 8 21 3.72	. . .
o Ceti	15 43.950	+1.029	.089	2 13 59.890	274 9 8.99	− 43.49	50.35	− 3 27(24.85)	(22.34)
ξ 2 Ceti	24 15.786	+ .965	.096	2 22 31.655	285 35 30.62	− 28.35	50.35	+ 7 59 11.92	25.48
36 H. Cassiop.	29 43.65	− .07	.101	2 27 58.48	349 56 36.31	+ 35.30	50.35	+72 21 21.26	25.80
δ Ceti	35 47.479	+1.011	.106	2 34 3.384	277 28 51.44	− 38.61	50.35	− 0 7 37.52	24.84
β Urs. Min. S. P.	52 40.32	+2.29	− 105.120	14 50 57.49	22 58 29.31	+124.13	50.35	+74 35 16.91	25.28

o Ceti 8 mag.

c −ˢ.006	c' −ˢ.023	ΔT −1ᵐ 45ˢ.023	Nadir 134° 56′ 15″.91	t 49.9
b + .626		at 0ʰ 56ᵐ	Equator 277 35 50 .35	B 26.01
a + .883		ρ − .050	(o Ceti omitted)	T 51

NOVEMBER 8, 1893. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
α Pegasi	23 1 13.656	+ .883	− 106.121	22 59 28.418	292 14 19.19	− 21.04	50.34	+14 38 7.81	25.82
γ Piscium	13 25.122	+ .945	.133	23 11 39.934	280 18 34.78	− 34.70	50.34	+ 2 42 9.74	25.82
λ Draco. S. P.	26 49.20	+1.88	.147	11 25 4.93	27 38 20.92	+159.41	50.34	+69 54 50.01	24.75
γ Cephei	36 46.58	− .42	.157	23 35 0.00	354 37 46.96	+ 41.64	50.34	+77 2 38.26	23.94
ω Piscium	55 37.172	+ .926	.176	23 53 51.922	283 52 57.42	− 30.20	50.34	+ 6 16 36.88	25.20
γ Pegasi	0 9 31.806	+ .882	.190	0 7 46.498	292 11 54.22	− 21.04	50.34	+14 35 42.84	25.43
No. 1	14 32.605	+ .739	.195	0 12 47.149	313 47 50.73	− 0.99	50.34	+36 11 59.40	. . .
3	22 48.597	+1.216	.203	0 21 3.610	234 47 23.94	− 279.03	50.34	−42 53 5.43	. . .
5	33 39.629	+1.091	.214	0 31 54.506	252 16 19.95	− 96.81	50.34	−25 21 7.20	. . .
7	45 43.550	+ .700	.226	0 43 58.024	318 6 1.16	+ 2.78	50.34	+40 30 13.60	. . .
9	1 14 5.300	+ .944	.253	1 12 19.991	280 39 50.43	− 34.33	50.34	+ 3 3 25.76	. . .
Gr. 2001 S. P.	25 7.46	+2.04	.265	13 23 23.24	24 37 9.31	+135.09	50.34	+72 56 25.94	25.46
12	33 14.292	+ .898	.273	1 31 28.915	289 12 17.01	− 24.32	50.34	+11 36 2.35	. . .
ξ Piscium	49 49.633	+ .945	.290	1 48 4.288	280 16 20.78	− 34.90	50.34	+ 2 39 55.54	25.36
50 Cassiop.	56 10.08	− .01	.296	1 54 23.77	349 29 51.94	+ 34.77	50.34	+71 54 36.37	25.83
13	2 9 8.508	+ .916	.309	2 7 23.115	285 57 22.06	− 27.96	50.34	+ 8 21 3.76	. . .
o Ceti	15 45.308	+ .975	.316	2 13 59.967	274 9 6.18	− 43.54	50.34	− 3 27 27.70	24.91
ξ 2 Ceti	24 17.150	+ .917	.324	2 22 31.743	285 35 30.32	− 28.38	50.34	+ 7 59 11.60	25.57
36 H. Cassiop.	29 44.85	− .03	.330	2 27 58.49	349 56 36.64	+ 35.36	50.34	+72 21 21.66	25.53
δ Ceti	35 48.722	+ .959	.336	2 34 3.345	277 28 51.21	− 38.67	50.34	− 0 7 37.80	24.84
β Urs. Min. S. P.	52 41.58	+2.17	− 106.353	14 50 57.40	22 58 29.80	+124.38	50.34	+74 35 16.16	24.73

o Ceti 7½ mag.

c −ˢ.016	c' −ˢ.033	ΔT −1ᵐ 46ˢ.237	Nadir 134° 56′ 15″.70	t 49.9
b + .613		at 0ʰ 56ᵐ	Equator 277 35 50 .34	B 25.99
a + .831		ρ − .060		T 50

NOVEMBER 13, 1893. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
λ Aquarii . . .	22 48 55.958	+1.062	−112.275	22 47 4.745	269 27 58.05	− 50.36	50.68	− 8 8 42.99	25.56
π Cephei	23 6 23.11	− .06	.278	23 4 30.77	352 24 16.60	+ 37.96	50.68	+74 49 3.88	25.39
γ Piscium . . .	13 31.136	+1.005	.285	23 11 39.856	280 18 34.72	− 34.20	50.68	+ 2 42 9.84	25.48
λ Draco. S. P. .	26 55.71	+1.85	.291	11 25 5.27	27 38 21.95	+157.16	50.68	+69 54 51.57	27.61
ι Piscium . . .	36 20.943	+ .987	.294	23 34 29.636	282 39 28.57	− 31.25	50.68	+ 5 3 6.64	24.96
ω Piscium . . .	55 43.286	+ .977	.303	23 53 51.960	283 52 57.29	− 29.80	50.68	+ 6 16 36.81	25.07
127 .	0 1 45.879	+1.034	.306	23 59 54.607	271 18 33.46	− 47.15	50.68	− 6 18 4.37	. . .
4 H. Draco. S. P.	9 1.58	+2.43	.308	12 7 11.70	19 21 58.99	+102.97	50.68	+78 12 8.72	24.21
No. 2 .	21 49.486	+ .995	.314	0 19 58.167	278 57 36.40	− 35.93	50.68	+ 1 21 9.78	. . .
4 .	31 38.986	+1.018	.318	0 29 47.686	273 25 58.40	− 43.79	50.68	− 4 10 36.07	. . .
6 .	44 40.836	+ .974	.324	0 42 49.486	282 20 32.57	− 31.74	50.68	+ 4 44 10.15	. . .
43 H. Cephei . .	56 16.42	−2.89	.328	0 54 21.20	3 16 22.89	+ 55.60	50.68	+85 41 27.81	25.71
8 .	1 3 4.772	+ .598	.331	1 1 13.039	331 59 47.54	+ 15.21	50.68	+54 24 12.07	. . .
10 .	25 13.310	+ .216	.340	1 23 21.186	347 18 37.87	+ 31.40	50.68	+69 43 18.59	. . .
11 .	32 26.136	+ .744	.343	1 30 34.537	318 28 27.97	+ 3.06	50.68	+40 52 40.35	. . .
ν Piscium . . .	37 46.550	+ .960	.345	1 35 55.165	282 33 30.41	− 31.41	50.68	+ 4 57 8.32	25.39
ξ Piscium . . .	49 55.815	+ .969	.351	1 48 4.433	280 16 20.30	− 34.26	50.68	+ 2 39 55.36	25.18
4 Urs. Min. S. P.	2 11 2.04	+2.37	.359	14 9 12.05	19 31 29.83	+103.82	50.68	+78 2 37.03	24.34
ξ 2 Ceti	24 23.129	+ .935	.365	2 22 31.699	285 35 30.06	− 27.87	50.68	+ 7 59 11.51	25.46
36 H. Cassiop. .	29 50.88	+ .07	.367	2 27 58.58	349 56 39.58	+ 34.71	50.68	+72 21 23.61	25.16
δ Ceti	35 54.800	+ .970	−112.370	2 34 3.400	277 28 50.95	− 37.97	50.68	− 0 7 37.70	24.30

c −ˢ.003 c' −ˢ.020 ΔT −1ᵐ 52ˢ.325 Nadir 134° 56′ 15″.86 t 58.9
b + .639 at 0ʰ.9 Rate −ˢ.01 at 0ʰ 45ᵐ Equator 277 35 50 .68 B 26.05
a + .837 at 0 .6 Rate − .01 ρ −.025 T 59

NOVEMBER 14, 1893. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
λ Aquarii . . .	22 48 57.050	+ .946	−113.331	22 47 4.665	269 27 59.03	− 50.49	51.50	− 8 8 42.96	25.43
π Cephei	23 6 24.02	+ .06	.345	23 4 30.74	352 24 17.47	+ 38.11	51.50	+74 49 4.08	25.30
γ Piscium . . .	13 32.336	+ .907	.351	23 11 39.892	280 18 35.94	− 34.35	51.50	+ 2 42 10.09	25.13
λ Draco. S. P. .	26 57.31	+1.61	.362	11 25 5.56	27 38 23.19	+158.05	51.50	+69 54 50.26	26.48
ι Piscium . . .	36 22.143	+ .899	.370	23 34 29.672	282 39 29.73	− 31.45	51.50	+ 5 3 6.78	24.74
ω Piscium . . .	55 44.408	+ .895	.386	23 53 51.917	283 52 56.83	− 30.00	50.08	+ 6 16 36.75	25.75
127 .	0 1 47.065	+ .939	.391	23 59 54.613	271 18 33.34	− 47.48	50.08	− 6 18 4.22	. . .
4 H. Draco. S. P.	9 3.12	+2.08	.398	12 7 11.80	19 21 57.84	+103.70	50.08	+78 12 8.54	24.96
No. 2 .	21 50.622	+ .912	.409	0 19 58.125	278 57 36.75	− 36.19	50.08	+ 1 21 10.48	. . .
4 .	31 40.129	+ .932	.417	0 29 47.644	273 25 58.70	− 44.11	50.08	− 4 10 35.49	. . .
6 .	44 41.936	+ .900	.427	0 42 49.409	282 20 32.61	− 31.90	50.08	+ 4 44 10.63	. . .
43 H. Cephei .	56 17.04	−2.24	.437	0 54 21.36	3 16 22.80	+ 56.04	50.08	+85 41 28.76	25.72
8 .	1 3 5.892	+ .607	.443	1 1 13.056	331 59 46.75	+ 15.33	50.08	+54 24 12.00	. . .
10 .	25 14.275	+ .300	.461	1 23 21.114	347 18 37.15	+ 31.67	50.08	+69 43 18.74	. . .
11 .	32 27.328	+ .728	.467	1 30 34.589	318 28 27.53	+ 3.09	50.08	+40 52 40.54	. . .
ν Piscium . . .	37 47.786	+ .899	.472	1 35 55.213	282 33 30.08	− 31.70	50.08	+ 4 57 8.30	26.04
ξ Piscium . . .	49 56.950	+ .907	.482	1 48 4.375	280 16 19.88	− 34.58	50.08	+ 2 39 55.22	25.91
4 Urs. Min. S. P.	2 11 3.64	+2.07	.499	14 9 12.21	19 31 29.02	+114.74	50.08	+78 2 36.32	24.66
ξ 2 Ceti	24 24.379	+ .888	.510	2 22 31.757	285 35 29.72	− 28.11	50.08	+ 7 59 11.53	26.06
36 H. Cassiop. .	29 51.91	+ .19	.515	2 27 58.59	349 56 39.37	+ 35.01	50.08	+72 21 24.30	25.44
δ Ceti	35 55.972	+ .917	−113.520	2 34 3.369	277 28 50.27	− 38.29	50.08	− 0 7 38.10	25.27

Illumination adjusted, telescope reversed several times, at 23ʰ 45ᵐ; change appears to have taken place in the reading of the Circle.

c −ˢ.016 c' −ˢ.033 ΔT −1ᵐ 53ˢ.427 Nadir 134° 56′ 16″.61 : 15″.88 t 56.2
b + .631 at 0ʰ 45ᵐ Equator 277 35 51 .50 : 50 .08 B 26.09
a + .739 ρ −.050 Change at 23ʰ 45ᵐ T 58

NOVEMBER 15, 1893. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
α Pegasi . . .	23 1 22.006	+ .904	− 114.576	22 59 28.334	292 14 16.20	− 20.85	48.72	+14 38 (6.63)	(28.48)
γ Piscium . . .	13 33.550	+ .947	.589	23 11 39.308	280 18 32.70	− 34.42	48.72	+ 2 42 9.56	(27.24)
λ Draco. S. P. .	26 58.61	+1.57	.602	11 25 5.58	27 38 21.33	+158.23	48.72	+69 54 49.16	(27.27)
γ Cephei . . .	36 54.02	+ .04	.612	23 34 59.45	354 37 46.77	+ 41.36	48.72	+77 2 39.41	(25.86)
ω Piscium . . .	55 45.650	+ .934	.631	23 53 51.953	283 52 56.00	− 30.02	48.72	+ 6 16 37.26	(26.16)
γ Pegasi . . .	0 9 40.127	+ .903	.645	0 7 46.385	292 11 52.66	− 20.91	48.72	+14 35 43.03	(26.86)
No. 1 .	14 40.983	+ .806	.650	0 12 47.139	313 47 50.57	− 0.99	48.72	+36 12 0.86	. . .
3 .	22 57.068	+1.134	.658	0 21 3.544	234 47 19.63	− 277.16	48.72	− 42 53 6.25	. . .
5 .	33 48.151	+1.048	.669	0 31 54.530	252 16 17.68	− 96.17	48.72	− 25 21 7.21	. . .
7 .	45 51.857	+ .779	.681	0 43 57.955	318 6 1.89	+ 2.76	48.72	+40 30 15.93	. . .
9 .	1 14 13.836	+ .946	.709	1 12 20.073	280 39 48.78	− 34.00	48.72	+ 3 3 26.06	. . .
Gr. 2001 S. P. .	25 16.51	+1.68	.720	13 23 23.47	24 37 12.47	+133.72	48.72	+72 56 22.53	(26.22)
12 .	33 22.699	+ .915	.728	1 31 28.886	289 12 16.54	− 24.06	50.79	+11 36 1.69	. . .
ξ Piscium . . .	49 58.215	+ .947	.745	1 48 4.417	280 16 20.89	− 34.51	50.79	+ 2 39 55.59	(24.37)
50 Cassiop. . . .	56 18.42	+ .31	.751	1 54 23.98	349 29 54.35	+ 34.38	50.79	+71 54 37.94	(25.91)
13 .	2 9 17.000	+ .927	.764	2 7 23.163	285 57 21.16	− 27.66	50.79	+ 8 21 2.71	. . .
o Ceti	15 53.772	+ .968	.771	2 13 59.969	274 9 5.65	− 43.07	50.79	− 3 27 28.17	(24.15)
ξ 2 Ceti	24 25.579	+ .928	.779	2 22 31.728	285 35 29.85	− 28.07	50.79	+ 7 59 10.99	(25.47)
36 H. Cassiop. .	29 53.11	+ .28	.785	2 27 58.61	349 56 39.60	+ 34.98	50.79	+72 21 23.79	(25.13)
δ Ceti	35 57.265	+ .956	.791	2 34 3.430	277 28 50.29	− 38.26	50.79	− 0 7 38.76	(24.74)
β Urs. Min. S. P.	52 50.54	+1.76	− 114.808	14 50 57.49	22 58 33.01	+123.09	50.79	+74 35 14.69	(25.76)

Change of 2″ appears in Circle readings after observation of Gr. 2001. But there is no change in the Nadir readings, which were made at 22.8, 1.1, and 3.2 hours, respectively.

c ˢ.000	c' −ˢ.017	ΔT − 1ᵐ 54ˢ.691	Nadir 134° 56′ (15″.47)	t 53.1
b + .653		at 0ʰ 56ᵐ	Equator 277 35 48 .72 : 50″.79	B 25.93
a + .748		ρ − .060	Change at 1ʰ.5 (α Pegasi omitted.)	T 55

NOVEMBER 21, 1893. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
α Pegasi	23 1 29.327	+ .810	− 121.903	22 59 28.234	292 14 20.83	− 21.36	51.23	+14 38 8.24	25.48
γ Piscium . . .	13 40.843	+ .858	.916	23 11 39.785	280 18 36.31	− 35.30	51.23	+ 2 42 9.78	25.46
λ Draco. S. P. .	27 6.32	+1.56	.929	11 25 5.95	27 38 19.95	+162.56	51.23	+69 54 48.72	27.03
γ Cephei . . .	37 0.93	− .17	.939	23 34 58.82	354 37 48.65	+ 42.50	51.23	+77 2 39.92	25.36
ω Piscium . . .	55 52.986	+ .844	.958	23 53 51.872	283 52 58.55	− 30.90	51.23	+ 6 16 36.42	25.48
γ Pegasi	0 9 47.527	+ .809	.972	0 7 46.366	292 11 55.42	− 21.52	51.23	+14 35 42.67	25.95
No. 1 .	14 48.276	+ .701	.977	0 12 47.000	313 47 53.09	− 1.26	51.23	+36 12 0.60	. . .
3 .	23 4.439	+1.068	.985	0 21 3.522	234 47 26.24	− 285.58	51.23	− 42 53 10.57	. . .
5 .	33 55.458	+ .972	.996	0 31 54.434	252 16 20.37	− 98.94	51.23	− 25 21 9.80	. . .
7 .	45 59.200	+ .673	− 122.008	0 43 57.865	318 6 2.99	+ 2.84	51.23	+40 30 14.60	. . .
9 .	1 14 21.215	+ .857	.036	1 12 20.036	280 39 51.23	− 34.98	51.23	+ 3 3 25.02	. . .
12 .	33 30.049	+ .823	.055	1 31 28.817	289 12 18.04	− 24.74	51.23	+11 36 2.07	. . .
ξ Piscium . . .	50 5.622	+ .858	.072	1 48 4.408	280 16 21.02	− 35.49	51.23	+ 2 39 54.30	26.12
50 Cassiop. . . .	56 25.75	+ .15	.078	1 54 23.82	349 29 56.49	+ 35.35	51.23	+71 54 40.61	25.79
13 .	2 9 24.436	+ .836	.091	2 7 23.181	285 57 22.48	− 28.43	51.23	+ 8 21 2.82	. . .
ξ 2 Ceti	24 32.972	+ .837	.106	2 22 31.703	285 35 31.16	− 28.85	51.23	+ 7 59 11.11	25.93
36 H. Cassiop. .	30 0.47	+ .11	.112	2 27 58.47	349 56 41.18	+ 35.94	51.23	+72 21 25.89	25.69
δ Ceti	36 4.608	+ .869	.118	2 34 3.359	277 28 52.09	− 39.31	51.23	− 0 7 38.45	24.72
β Urs. Min. S. P.	52 57.91	+1.78	.135	14 50 57.55	——			+74 35 ——	. . .
α Ceti	58 46.168	+ .854	− 122.141	2 56 44.881	——			+ 3 40 ——	. . .

Clouds last two hours. Gr. 2001 and o Ceti not visible.

c −ˢ.003	c' −ˢ.020	ΔT − 2ᵐ 2ˢ.023	Nadir 134° 56′ 16″.82	t 37.9
b + .572		at 1ʰ 1ᵐ	Equator 277 35 51 .23	B 25.80
a + .715		ρ − .060	7 stars.	T 38

DECEMBER 6, 1893. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
α Urs. Min. . .	1 22 47.10	−13.95	−140.750	1 20 12.40	6 19 37.70	+62.57	50.48	+88 44 49.79	25.97
ν Piscium . . .	38 14.965	+ .903	.765	1 35 55.103	282 33 28.82	− 31.68	50.48	+ 4 57 6.66	26.19
ξ Piscium . . .	50 24.200	+ .915	.777	1 48 4.338	280 16 19.10	− 34.51	50.48	+ 2 39 54.11	25.36
4 Urs. Min. S. P.	2 11 31.41	+ 2.51	.799	14 9 13.12	19 31 36.68	+104.40	50.48	+78 2 29.40	25.31
ξ 2 Ceti	24 51.650	+ .888	.812	2 22 31.726	285 35 29.18	− 28.00	50.48	+ 7 59 10.70	25.63
14 . .	32 36.436	+ .896	.820	2 30 16.512	283 59 17.12	− 29.86	50.48	+ 6 22 56.78	. . .
15 . .	47 58.827	+ .855	.835	2 45 38.847	292 15 1.29	− 20.80	50.48	+14 38 50.01	. . .
16 . .	55 29.410	+ .814	.842	2 53 9.382	298 31 12.33	− 14.66	50.48	+20 55 7.19	. . .
17 . .	3 11 8.974	+ .815	.858	3 8 48.931	298 15 19.95	− 14.91	50.48	+20 39 14.56	. . .
o Tauri	21 27.071	+ .884	.868	3 19 7.087	286 15 45.34	− 27.19	50.48	+ 8 39 27.67	25.17
ζ Urs. Min. S. P.	50 4.57	+ 2.51	.897	15 47 46.18	19 27 4.86	+103.82	50.48	+78 7 1.80	24.81
18 . .	4 0 46.353	+ .807	.908	3 58 26.252	299 23 44.44	− 13.84	50.48	+21 47 40.12	. . .
o 1 Eridani . .	9 2.243	+ .967	.916	4 6 42.294	270 29 54.94	− 48.73	50.48	− 7 6 44.27	25.39
20 . .	28 18.511	+ .642	.935	4 25 58.218	320 26 9.51	+ 4.79	50.48	+42 50 23.82	. . .
Gr. 848	36 58.70	− .33	.944	4 34 37.43	353 20 11.53	+ 39.37	50.48	+75 45 0.42	25.66
21 . .	46 25.950	+ .894	.953	4 44 5.891	284 23 1.92	− 29.32	50.48	+ 6 46 42.12	. . .
ε Urs. Min. S. P.	58 59.76	+ 3.34	.966	16 56 42.13	15 21 49.94	+ 87.18	50.48	+82 12 33.36	25.39
β Eridani . . .	5 4 59.158	+ .956	.972	5 2 39.142	272 23 19.61	− 45.52	50.48	− 5 13 16.39	25.50
β Orionis	11 47.457	+ .973	.979	5 9 27.451	269 17 22.52	− 50.68	50.48	− 8 19 18.64	25.24
γ Orionis	21 47.572	+ .897	.989	5 19 27.480	283 51 41.95	− 29.87	50.48	+ 6 15 21.60	24.93
Gr. 966	27 57.50	− .26	−140.995	5 25 36.25	352 33 41.40	+ 38.18	50.48	+74 58 29.10	23.88

c −″.010	c′ −″.027	ΔT −2m 20s.885	Nadir	134° 56′ 15″.91	t 57.4
b + .579		at 3h 38m	Equator	277 35 50 .48	B 26.09
a + .818		ρ −.060			T 57

DECEMBER 9, 1893. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
β Urs. Min. S. P.	2 53 20.70	+2.07	−144.572	14 50 58.20	22 58 44.93	+122.63	50.24	+74 35 2.68	24.00
ρ Persei N . . .	3 0 47.389	+ .646	.578	2 58 23.457	316 1 47 46	+ 0.95	50.24	+38 25 58.17	25.32
o Tauri	21 30.792	+ .839	.595	3 19 7.036	286 15 44.65	− 27.22	50.24	+ 8 39 27.19	26.03
ε Eridani . . .	30 20.671	+ .931	.602	3 27 57.000	267 47 45.95	− 53.56	50.24	− 9 48 57.85	25.24
5 H. Camelop. .	41 36.61	− .02	.612	3 39 11.98	348 35 49.20	+ 33.12	50.24	+71 0 32.08	25.38
ξ Persei S . . .	54 29.849	+ .671	.622	3 52 5.898	313 5 12.48	− 1.61	50.24	+35 29 20.63	25.10
ν Tauri	59 55.550	+ .854	.627	3 57 31.777	283 18 10.36	− 30.64	50.24	+ 5 41 49.48	25.45
19 . .	4 12 48.172	+ .921	.637	4 10 24.456	269 47 41.98	− 49.93	50.24	− 7 48 58.19	. . .
A. Draco. S. P. .	30 31.14	+1.75	.652	16 28 8.24	28 33 22.97	+166.95	50.24	+68 59 40.32	25.04
Gr. 848	37 2.59	− .34	.658	4 34 37.59	353 20 12.99	+ 39.38	50.24	+75 45 2.13	25.37
μ Eridani . . .	42 36.743	+ .900	.663	4 40 12.980	274 9 43.67	− 42.84	50.24	− 3 26 49.41	26.00
22 . .	47 35.032	+ .784	.667	4 45 11.149	296 15 49.50	− 16.80	50.24	+18 39 42.46	. . .
23 . .	5 0 55.391	+ .804	.678	4 58 31.517	292 51 42.04	− 20.16	50.24	+15 15 31.64	. . .
26 . .	30 41.66	−2.82	.702	5 28 14.14	2 43 36.35	+ 54.74	50 24	+85 8 40.85	. . .
28 . .	38 13.544	+1.067	.709	5 35 49.902	243 30 34.83	−146.48	50.24	−34 7 41.89	. . .
κ Orionis	45 8.464	+ .931	.715	5 42 44.680	267 54 25.49	− 53.31	50.24	− 9 42 18.06	26.49
ν Orionis	6 3 55.920	+ .806	.730	6 1 31.996	292 23 10.01	− 20.65	50.24	+14 46 59.12	26.44
δ Urs. Min. S. P.	8 28.37	+6.28	.734	18 6 9.92	10 57 56.44	+ 73.64	50.24	+86 36 40.16	25.64
8 Monocerotis .	20 33.722	+ .858	.744	6 18 9.836	282 15 18.35	− 31.91	50.24	+ 4 38 56.20	25.92
23 Camelop. . .	30 39.71	− .82	−144.753	6 28 14.14	357 15 48.35	+ 45.29	50.24	+79 40 43.40	25.44

c −″.016	c′ −″.033	ΔT −2m 24s.667	Nadir	134° 56′ 16″.18	t 54.4
b + .555		at 4h 49m	Equator	277 35 50 .24	B 25.91
a + .781		ρ −.050			T 55

DECEMBER 11, 1893. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
μ Androm. S .	0 53 18.124	+ .651	− 146.987	0 50 51.788	315 31 29.13	+ 0.51	51.34	+37 55 38.30	26.84
β Androm. N .	1 6 13.893	+ .669	.995	1 3 47.567	312 39 35.35	− 2.00	51.34	+35 3 42.01	25.83
α Urs. Min. . .	22 47.50	− 11.82	− 147.010	1 20 8.67	6 19 40.20	+ 62.74	51.34	+88 44 51.60	25.72
ν Piscium . . .	38 21.265	+ .831	.022	1 35 55.074	282 33 30.63	− 31.82	51.34	+ 4 57 7.47	25.42
ξ Piscium . . .	50 30.529	+ .841	.032	1 48 4.338	280 16 19.98	− 34.71	51.34	+ 2 39 53.93	25.47
4 Urs. Min. S. P.	2 11 38.46	+ 2.20	.050	14 9 13.61	19 31 39.19	+105.23	51.34	+78 2 26.92	24.74
ξ 2 Ceti	24 58.029	+ .817	.061	2 22 31.785	285 35 30.30	− 28.24	51.34	+ 7 59 10.72	25.73
14 .	32 42.786	+ .824	.068	2 30 16.542	283 59 17.92	− 30.13	51.34	+ 6 22 56.45	. . .
15 .	45 5.127	+ .789	.077	2 42 38.839	292 15 2.35	− 21.01	51.34	+14 38 50.00	. . .
16 .	55 35.803	+ .754	.086	2 53 9.471	298 31 13.35	− 14.81	51.34	+20 55 7.20	. . .
17 .	3 11 15.317	+ .755	.100	3 8 48.972	298 15 20.58	− 15.07	51.34	+20 39 14.17	. . .
o Tauri	21 33.392	+ .815	.108	3 19 7.099	286 15 46.17	− 27.49	51.34	+ 8 39 27.34	25.54
ζ Urs. Min. S. P.	50 11.27	+ 2.21	.132	15 47 46.35	19 27 6.99	+105.05	51.34	+78 6 59.30	24.46
18 .	4 0 52.745	+ .750	.141	3 58 26.354	299 23 46.19	− 14.00	51.34	+21 47 40.85	. . .
o 1 Eridani . .	9 8.558	+ .883	.147	4 6 42.294	270 29 55.56	− 49.31	51.34	− 7 6 45.09	25.72
20 .	28 24.840	+ .610	.163	4 25 58.287	320 26 11.34	+ 4.84	51.34	+42 50 24.84	. . .
Gr. 848	37 4.93	− .22	.171	4 34 37.54	353 20 13.77	+ 39.84	51.34	+75 45 2.27	25.57
21 .	46 32.293	+ .822	.179	4 44 5.936	284 23 3.21	− 29.68	51.34	+ 6 46 42.19	. . .
ε Urs. Min. S. P.	59 6.15	+ 2.91	.189	16 56 41.87				+82 12 ——	. . .
β Eridani . . .	5 5 5.572	+ .876	.194	5 2 39.254	272 23 20.16	− 46.11	51.34	− 5 13 17.29	25.84
β Orionis . . .	11 53.828	+ .889	.200	5 9 27.517	269 17 22.74	− 51.35	51.34	− 8 19 19.95	25.90
γ Orionis . . .	21 53.972	+ .826	.208	5 19 27.590	283 51 42.50	− 30.28	51.34	+ 6 15 20.88	25.40
Gr. 966	28 3.90	− .16	− 147.213	5 25 36.53	352 33 42.96	+ 38.70	51.34	+74 58 30.32	24.34

Clouds during last half hour.

c −ˢ.010	c' −ˢ.027	ΔT −2ᵐ 27ˢ.123	Nadir 134° 56′ 16″.96	t 47.0
b + .547		at 3ʰ 38ᵐ	Equator 277 35 51 .34	B 25.78
a + .733		ρ − .050		T 48

DECEMBER 19, 1893. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
μ Androm. N .	0 53 28.155	+ .683	− 157.123	0 50 51.715	315 31 29.57	+ 0.52	50.88	+37 55 39.21	26.12
β Androm. S . .	1 6 23.843	+ .704	.136	1 3 47.411	312 39 34.99	− 2.02	50.88	+35 3 42.09	25.94
α Urs. Min. . .	22 49.98	− 12.48	.153	1 20 0.35	6 19 41.34	+ 63.56	50.88	+88 44 54.02	25.01
ν Piscium . . .	38 31.308	+ .873	.169	1 35 55.012	282 33 29.17	− 32.21	50.88	+ 4 57 6.08	26.33
ξ Piscium . . .	50 40.558	+ .884	.181	1 48 4.261	280 16 19.81	− 35.11	50.88	+ 2 39 53.82	25.04
4 Urs. Min. S. P.	2 11 49.10	+ 2.31	.202	14 9 14.21	19 31 39.72	+106.33	50.88	+78 2 24.83	25.02
ξ 2 Ceti	25 7.993	+ .860	.215	2 22 31.638	285 35 29.80	− 28.53	50.88	+ 7 59 10.39	25.72
14 .	32 52.808	+ .867	.223	2 30 16.452	283 59 17.01	− 30.43	50.88	+ 6 22 55.70	. . .
15 .	48 15.165	+ .831	.238	2 45 38.758	292 15 2.38	− 21.21	50.88	+14 38 50.29	. . .
16 .	55 45.853	+ .794	.246	2 53 9.401	298 31 13.07	− 14.95	50.88	+20 55 7.24	. . .
17 .	3 11 25.424	+ .795	.260	3 8 48.959	298 15 20.45	− 15.20	50.88	+20 39 14.37	. . .
o Tauri	21 43.553	+ .856	.272	3 19 7.137	286 15 46.03	− 27.70	50.88	+ 8 39 27.45	25.07
ζ Urs. Min. S. P.	50 21.53	+ 2.33	.300	15 47 46.56	19 27 8.24	+105.63	50.88	+78 6 57.01	25.13
18 .	4 1 2.860	+ .789	.311	3 58 26.338	299 23 45.39	− 14.07	50.88	+21 47 40.44	. . .
o 1 Eridani . .	9 18.722	+ .929	.319	4 6 42.332	270 29 53.96	− 49.54	50.88	− 7 6 46.46	25.98
20 .	28 35.025	+ .640	.339	4 25 58.326	320 26 11.56	+ 4.87	50.88	+42 50 25.55	. . .
Gr. 848	37 15.26	− .23	.347	4 34 37.68	353 20 15.24	+ 40.03	50.88	+75 45 4.39	25.90
21 .	46 42.479	+ .865	.357	4 44 5.987	284 23 1.82	− 29.82	50.88	+ 6 46 41.12	. . .
ε Urs. Min. S. P.	4 59 16.10	+ 3.07	.369	16 56 41.80	15 21 54.50	+ 88.72	50.88	+82 12 27.66	25.17
β Eridani . . .	5 5 15.700	+ .921	.375	5 2 39.246	272 23 18.52	− 46.86	50.88	− 5 13 19.22	26.61
β Orionis . . .	12 3.968	+ .934	.382	5 9 27.520	269 17 21.91	− 51.60	50.88	− 8 19 20.57	25.20
γ Orionis . . .	22 4.222	+ .868	.392	5 19 27.698	283 51 40.88	− 30.42	50.88	+ 6 15 19.58	26.02
Gr. 966	28 14.54	− .17	− 157.398	5 25 36.97	352 33 44.39	+ 38.89	50.88	+74 58 32.40	24.69

c −ˢ.013	c' −ˢ.030	ΔT −2ᵐ 37ˢ.286	Nadir 134° 56′ 16″.63	t 43.9
b + .577		at 3ʰ 38ᵐ	Equator 277 35 50 .88	B 25.83
a + .771		ρ − .060		T 44

DECEMBER 29, 1893. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
μ Androm. N	0 53 41.967	+ .620	− 171.054	0 50 51.533	315 31 30.27	+ 0.53	51.77	+37 55 39.03	26.25
β Androm. S	1 6 37.643	+ .648	.064	1 3 47.227	312 39 35.52	− 2.04	51.77	+35 3 41.71	26.30
α Urs. Min.	22 59.55	− 16.68	.075	1 19 51.80	——			+88 44 ——	. . .
ν Piscium	38 45.122	+ .866	.086	1 35 54.902	282 33 30.55	− 32.51	51.77	+ 4 57 6.27	25.56
ξ Piscium	50 54.408	+ .879	.094	1 48 4.193	280 16 20.59	− 35.44	51.77	+ 2 39 53.38	24.86
4 Urs. Min. S. P.	2 12 3.49	+ 2.77	.108	14 9 15.15	——			+78 2 ——	. . .
ξ 2 Ceti	25 21.958	+ .847	.117	2 22 31.688	285 35 31.00	− 28.78	51.77	+ 7 59 10.45	25.11
14	33 6.693	+ .857	.122	2 30 16.428	283 59 17.83	− 30.69	51.77	+ 6 22 55.37	. . .
15	48 29.084	+ .811	.132	2 45 38.763	292 15 3.12	− 21.38	51.77	+14 38 49.97	. . .
16	55 59.781	+ .763	.137	2 53 9.407	298 31 14.19	− 15.07	51.77	+20 55 7.35	. . .
17	3 11 39.317	+ .765	.148	3 8 48.934	298 15 21.37	− 15.33	51.77	+20 39 14.27	. . .
o Tauri	21 57.385	+ .844	.155	3 19 7.074	286 15 46.89	− 27.98	51.77	+ 8 39 27.14	24.84
ζ Urs. Min. S. P.	50 35.61	+ 2.77	.174	15 47 47.21	——			+78 6 ——	. . .
18	4 1 16.853	+ .756	.181	3 58 26.428	299 23 46.68	− 14.26	51.77	+21 47 40.65	. . .
o 1 Eridani	9 32.586	+ .936	.186	4 6 42.336	270 29 53.41	− 50.21	51.77	− 7 6 48.57	26.68
20	28 49.104	+ .565	.199	4 25 58.470	320 26 13.97	+ 4.93	51.77	+42 50 27.13	. . .
Gr. 848	37 29.48	− .57	.205	4 34 37.71	353 20 18.79	+40.52	51.77	+75 45 7.54	25.57
21	46 56.450	+ .855	.211	4 44 6.094	284 23 2.72	− 30.17	51.77	+ 6 46 40.78	. . .
ε Urs. Min. S. P.	59 29.73	+ 3.75	.219	16 56 42.26	——			+82 12 ——	. . .
β Eridani	5 5 29.658	+ .926	.223	5 2 39.361	272 23 18.47	− 46.84	51.77	− 5 13 20.14	26.03
β Orionis	12 17.908	+ .944	.228	5 9 27.624	269 17 20.31	− 52.18	51.77	− 8 19 23.64	26.56
γ Orionis	22 18.072	+ .859	.235	5 19 27.696	283 51 42.04	− 30.77	51.77	+ 6 15 19.50	25.17
Gr. 966	28 28.94	− .50	− 171.239	5 25 37.20	352 33 47.90	+39.55	51.77	+74 58 35.48	24.47

Bad definition throughout. Wind very strong, north.

c −ˢ.032 c' −ˢ.049 ΔT − 2ᵐ 51ˢ.164 Nadir 134° 56′ 17″.37 t 40.4
b + .547 at 3ʰ 38ᵐ Equator 277 35 51 .77 B 25.91
a + .840 ρ − .040 T 39

JANUARY 10, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
β Urs. Min. S. P.	2 54 7.96	+2.35	− 189.916	14 51 0.40	22 58 51.83	+124.95	51.54	+74 34 54.76	25.61
ρ Persei S	3 1 32.468	+ .641	.926	2 58 23.183	316 1 50.77	+ 0.97	51.54	+38 26 0.20	25.79
o Tauri	22 16.061	+ .885	.954	3 19 6.992	286 15 45.41	− 27.75	51.54	+ 8 39 26.12	25.53
ε Eridani	31 5.804	+1.008	.965	3 27 56.847	267 47 44.12	− 54.65	51.54	− 9 49 2.07	25.40
5 H. Camelop.	42 21.56	− .17	.982	3 39 11.41	348 35 57.29	+ 33.81	51.54	+71 0 39.56	25.59
ξ Persei N	55 15.171	+ .673	.998	3 52 5.846	313 5 16.33	− 1.64	51.54	+35 29 23.15	25.24
ν Tauri	4 0 40.827	+ .905	− 190.005	3 57 31.727	283 18 10.38	− 31.30	51.54	+ 5 41 47.54	25.31
19	13 33.376	+ .995	.022	4 10 24.349	269 47 39.58	− 51.04	51.54	− 7 49 3.00	. . .
A. Draco. S. P.	31 17.20	+1.96	.045	16 28 9.12	28 33 31.59	+170.78	51.54	+68 59 29.17	25.56
Gr. 848	37 47.86	− .58	.054	4 34 37.23	353 20 21.51	+ 40.27	51.54	+75 45 10.24	26.43
μ Eridani	43 22.155	+ .966	.062	4 40 13.059	274 9 42.06	− 43.82	51.54	− 3 26 53.30	25.92
22	48 20.517	+ .815	.068	4 45 11.264	296 15 50.19	− 17.19	51.54	+18 39 41.46	. . .
23	5 1 40.868	+ .840	.086	4 58 31.622	292 51 42.33	− 20.63	51.54	+15 15 30.16	. . .
26	31 28.39	− 3.57	.126	5 28 14.69	2 43 46.44	+ 56.01	51.54	+85 8 50.91	. . .
28	38 58.972	+1.197	.136	5 35 50.033	243 30 29.99	−149.91	51.54	−34 7 51.46	. . .
$\varkappa$ Orionis	45 54.097	+1.007	.145	5 42 44.959	267 54 21.76	− 54.55	51.54	− 9 42 24.33	27.03
35 Draco. S. P.	57 13.78	+2.61	.161	17 54 6.23	20 35 40.42	+111.81	51.54	+76 58 19.31	25.91
ν Orionis	6 4 41.689	+ .843	.170	6 1 32.362	292 23 10.57	− 21.12	51.54	+14 46 57.91	26.24
8 Monocerotis	21 19.498	+ .912	.192	6 18 10.218	282 15 16.80	− 32.62	51.54	+ 4 38 52.64	25.89
23 Camelop.	31 26.86	−1.16	− 190.206	6 28 15.49	357 15 58.90	+ 46.28	51.54	+79 40 53.64	24.65

c +ˢ.010 c' −ˢ.007 ΔT − 3ᵐ 10ˢ.071 Nadir 134° 55′ 17″.44 t 42.6
b + .526 at 4ʰ 50ᵐ Equator 277 35 51 .54 B 25.86
a + .876 ρ − .080 T 43

JANUARY 11, 1894. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
β Urs. Min. S. P.	2 54 9.64	+2.30	−191.474	14 51 0.47	22 58 52.68	+123.96	51.43	+74 34 54.79	25.67
ρ Persei N . . .	3 1 34.075	+ .605	.484	2 58 23.196	316 1 51.36	+ 0.96	51.43	+38 26 0.89	25.05
o Tauri	22 17.636	+ .840	.513	3 19 6.963	286 15 44.80	− 27.53	51.43	+ 8 39 25.84	25.68
ε Eridani . .	31 7.426	+ .957	.525	3 27 56.858	267 47 43.05	− 54.20	51.43	− 9 49 2.58	25.73
5 H. Camelop. .	42 23.02	− .20	.541	3 39 11.28	348 35 57.06	+ 33.54	51.43	+71 0 39.17	26.07
ξ Persei S . . .	55 16.721	+ .635	.559	3 52 5.797	313 5 16.17	− 1.63	51.43	+35 29 23.11	25.27
ν Tauri	4 0 42.427	+ .859	.567	3 57 31.719	283 18 9.35	− 31.05	51.43	+ 5 41 46.87	25.85
19 .	13 35.083	+ .944	.585	4 10 24.442	269 47 39.17	− 50.64	51.43	− 7 49 2.90	. . .
A. Draco. S. P. .	31 18.82	+1.91	.610	16 28 9.12	28 33 33.76	+169.47	51.43	+68 59 28.20	24.69
Gr. 848	37 49.40	− .59	.619	4 34 37.19	353 20 22.40	+ 39.98	51.43	+75 45 10.95	25.95
22 .	48 22.117	+ .772	.633	4 45 11.256	296 15 50.37	− 17.06	51.43	+18 39 41.88	. . .
23 .	5 1 42.511	+ .796	.652	4 58 31.655	292 51 41.70	− 20.48	51.43	+15 15 29.79	. . .
26 .	31 30.16	−3.56	.681	5 28 14.92	2 43 47.48	+ 55.63	51.43	+85 8 51.68	. . .
28 .	39 0.629	+1.135	.705	5 35 50.059	243 30 29.54	−148.89	51.43	−34 7 50.78	. . .
κ Orionis . . .	45 55.633	+ .957	.714	5 42 44.876	267 54 21.53	− 54.16	51.43	− 9 42 24.06	26.65
35 Draco. S. P. .	57 15.38	+2.56	.730	17 54 6.21	20 35 41.84	+111.11	51.43	+76 58 18.48	25.21
ν Orionis . . .	6 4 43.332	+ .799	.740	6 1 32.391	292 23 10.49	− 20.98	51.43	+14 46 58.08	26.00
8 Monocerotis .	21 21.170	+ .866	.764	6 18 10.272	282 15 17.13	− 32.41	51.43	+ 4 38 53.29	25.11
23 Camelop. . .	31 28.60	− 1.17	−191.778	6 28 15.65	357 15 59.37	+ 45.98	51.43	+79 40 53.92	24.62

c −ˢ.003 *c′* −ˢ.020 ΔT −3ᵐ 11ˢ.637 Nadir 134° 56′ 17″.27 *t* 47.8
b + .509 at 4ʰ 50ᵐ Equator 277 35 51 .43 B 25.92
a + .841 ρ −.084 T 49

JANUARY 12, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
β Urs. Min. S. P.	2 54 11.35	+2.18	−193.083	14 51 0.45	22 58 53.11	+124.83	52.13	+74 34 54.19	24.99
ρ Persei S . . .	3 1 35.818	+ .546	.092	2 58 23.272	316 1 51.10	+ 0.97	52.11	+38 25 59.96	25.76
o Tauri	22 19.319	+ .764	.118	3 19 6.965	286 15 45.55	− 27.76	52.04	+ 8 39 25.75	25.45
ε Eridani . . .	31 9.090	+ .869	.129	3 27 56.830	267 47 44.65	− 54.56	52.01	− 9 49 1.92	24.71
5 H. Camelop. .	42 24.72	− .22	.143	3 39 11.36	348 35 57.99	+ 33.74	51.97	+71 0 39.76	25.40
ξ Persei N . . .	55 18.392	+ .575	.160	3 52 5.807	313 5 16.53	− 1.64	51.93	+35 29 22.96	25.21
ν Tauri	4 0 44.091	+ .780	.166	3 57 31.705	283 18 10.16	− 31.22	51.91	+ 5 41 47.03	25.37
19 .	13 36.754	+ .857	.182	4 10 24.429	269 47 38.70	− 50.91	51.87	− 7 49 4.08	. . .
A. Draco. S. P. .	31 20.70	+1.82	.204	16 28 9.32	28 33 32.04	+170.34	51.81	+68 59 29.43	25.96
Gr. 848	37 50.96	− .59	.212	4 34 37.16	353 20 22.87	+ 40.17	51.79	+75 45 11.25	25.55
μ Eridani . . .	43 25.412	+ .833	.220	4 40 13.025	274 9 41.43	− 43.70	51.76	− 3 26 54.03	26.10
22 .	48 23.795	+ .701	.225	4 45 11.271	296 15 50.30	− 17.15	51.75	+18 39 41.40	. . .
23 .	5 1 44.146	+ .723	.242	4 58 31.627	292 51 42.25	− 20.57	51.71	+15 15 29.97	. . .
26 .	31 31.31	−3.44	.280	5 28 14.59	2 43 46.73	+ 55.86	51.61	+85 8 50.98	. . .
28 .	39 2.315	+1.022	.289	5 35 50.048	243 30 29.58	−149.52	51.58	−34 7 51.52	. . .
κ Orionis . . .	45 57.326	+ .868	.297	5 42 44.897	267 54 21.28	− 54.39	51.56	− 9 42 24.67	26.76
35 Draco. S. P. .	57 17.14	+2.44	.312	17 54 6.27	20 35 41.39	+111.57	51.52	+76 58 18.56	25.38
ν Orionis . . .	6 4 44.918	+ .727	.320	6 1 32.325	292 23 10.37	− 21.06	51.50	+14 46 57.81	25.97
8 Monocerotis .	21 22.834	+ .786	.343	6 18 10.277	282 15 17.05	− 32.54	51.44	+ 4 38 53.07	25.60
23 Camelop. . .	31 30.04	− 1.15	−193.355	6 28 15.54	357 15 59.48	+ 46.16	51.41	+79 40 54.23	24.36

Clouds last half hour.

c −ˢ.026 *c′* −ˢ.043 ΔT −3ᵐ 13ˢ.227 Nadir 314° 56′ 17″.33 at 4ʰ.9 *t* 44.2
b + .484 at 4ʰ 50ᵐ Equator 277 35 51 .73 at 4 .9 B 25.86
a + .775 ρ −.075 Rate −0″.2 hourly T 45

FEBRUARY 1, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	⊿T	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
Gr. 848	4 38 21.81	-- .56	-225.124	4 34 36.13	353 20 26.10	+ 40.97	51.81	+75 45 15.26	25.62
π 5 Orionis	52 28.786	+ .869	.141	4 48 44.514	279 52 32.11	- 36.29	51.81	+ 2 16 4.01	25.67
ε Urs. Min. S. P.	5 0 27.17	+3.51	.151	16 56 45.53	15 22 6.74	+ 90.88	51.81	+82 12 14.19	25.29
β Eridani	6 23.386	+ .919	.157	5 2 39.148	272 23 15.31	- 47.45	51.81	- 5 13 23.95	26.16
24	15 26.728	+ .571	.168	5 11 42.131	317 36 19.59	+ 2.41	51.81	+40 0 30.19	. . .
γ Orionis	23 11.950	+ .843	.174	5 19 27.616	283 51 40.04	- 31.18	51.81	+ 6 15 17.05	25.54
25	29 35.309	+ .649	.185	5 25 50.773	309 42 56.48	- 4.73	51.81	+32 6 59.94	. . .
27	39 9.900	+ .942	.192	5 35 25.650	275 36 39.73	- 42.37	51.81	- 1 59 54.45	. . .
κ Orionis	46 29.064	+ .948	.204	5 42 44.808	267 54 20.22	- 55.50	51.81	- 9 42 27.09	26.63
9 Aurigae S	56 15.483	+ .603	.215	5 52 30.871	314 48 21.14	- 0.12	51.81	+37 12 29.21	26.31
30	6 26 25.938	+ .745	.250	6 22 41.433	297 52 59.31	- 15.88	51.81	+20 16 51.62	. . .
S Monocerotis	38 54.157	+ .817	.265	6 35 9.709	287 35 59.89	- 26.75	51.81	+ 9 59 41.33	25.79
18 Monocerotis	46 5.672	+ .867	.274	6 42 21.265	280 8 11.62	- 35.95	51.81	+ 2 31 43.86	25.26
51 H. Cephei	55 5.54	-6.57	.284	6 51 13.69	4 47 56.08	+ 61.26	51.81	+87 13 5.53	25.55
31	7 0 32.302	+ .672	.291	6 56 47.683	307 6 58.92	- 7.11	51.81	+29 31 0.00	. . .
32	12 44.15	-1.92	.305	7 8 56.93	0 12 7.49	+ 52.15	51.81	+82 37 7.83	. . .
τ Draco. S. P.	21 13.75	+2.06	.315	19 17 30.50	24 24 21.14	+137.03	51.81	+73 9 13.64	25.06
25 Monocerotis	35 46.258	+ .910	.332	7 32 1.836	273 44 9.98	- 45.23	51.81	- 3 52 27.06	26.17
34	50 37.534	+ .977	.350	7 46 53.161	263 59 55.07	- 63.61	51.81	- 13 37 0.35	. . .
Br. 1147	8 10 5.85	- .60	.372	8 6 19.88	353 40 7.04	+ 41.42	51.81	+76 4 56.65	25.35
κ Cephei S. P.	16 2.32	+2.49	.379	20 12 19.43	20 10 40.21	+111.48	51.81	+77 23 20.12	25.80
Br. 1197	24 7.643	+ .907	.388	8 20 23.162	274 2 57.99	- 44.71	51.81	- 3 33 38.53	26.81
Gr. 1450 N	29 48.466	+ .586	-225.395	8 26 3.657	315 58 40.78	+ 0.94	51.81	+38 22 49.91	24.66

c +".035 c' +".018 ⊿T -3m 45s.242 Nadir 314° 56′ 17″.81 t 32.4
b + .458 at 6h 19m Equator 277 35 51 .81 B 25.73
a + .827 ρ -.070 T 34

FEBRUARY 2, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	⊿T	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
Gr. 848	4 38 23.55	- .61	-226.797	4 34 36.14	353 20 26.39	+ 40.78	52.27	+75 45 14.90	25.87
π 5 Orionis	52 30.536	+ .849	.818	4 48 44.567	279 52 32.19	- 36.14	52.27	+ 2 16 3.78	25.60
ε Urs. Min. S. P.	5 0 28.79	+3.55	.831	16 56 45.51	15 22 6.26	+ 90.51	52.27	+82 12 15.50	26.55
β Eridani	6 25.086	+ .899	.839	5 2 39.146	272 23 15.30	- 47.27	52.27	- 5 13 24.24	26.12
24	15 28.400	+ .547	.854	5 11 42.093	317 26 20.32	+ 2.40	52.27	+40 0 30.45	. . .
γ Orionis	23 13.672	+ .823	.865	5 19 27.630	283 51 39.95	- 31.07	52.27	+ 6 15 16.61	25.68
25	29 37.037	+ .626	.875	5 25 50.788	309 42 56.46	- 4.72	52.27	+32 6 59.47	. . .
27	39 11.600	+ .878	.889	5 35 25.589	275 36 40.65	- 42.24	52.27	- 1 59 53.86	. . .
κ Orionis	46 30.749	+ .930	.899	5 42 44.780	267 54 20.74	- 55.32	52.27	- 9 42 26.85	26.01
9 Aurigae N	56 17.240	+ .576	.914	5 52 30.902	314 48 22.34	- 0.12	52.27	+37 12 29.95	25.39
30	6 26 27.667	+ .723	.959	6 22 41.431	297 52 59.68	- 15.83	52.27	+20 16 51.58	. . .
S Monocerotis	39 55.830	+ .797	.980	6 35 9.647	287 36 0.44	- 26.67	52.27	+ 9 59 41.50	25.30
18 Monocerotis	46 7.386	+ .848	.989	6 42 21.245	280 8 11.89	- 35.85	52.27	+ 2 31 43.77	25.00
51 H. Cephei	55 7.07	-6.75	227.003	6 51 13.32	4 47 57.25	+ 61.12	52.27	+87 13 6.10	24.98
31	7 0 34.097	+ .649	.011	6 56 47.735	307 6 59.44	- 7.09	52.27	+29 31 0.08	. . .
32	12 46.01	-2.00	.029	7 8 56.98	0 12 7.97	+ 52.06	52.27	+82 37 7.76	. . .
τ Draco. S. P.	21 15.29	+2.07	.042	19 17 30.32	24 24 21.79	+136.83	52.27	+73 9 13.65	25.14
25 Monocerotis	35 47.958	+ .891	.064	7 32 1.785	273 44 10.36	- 45.19	52.27	- 3 52 27.10	25.80
34	50 39.263	+ .957	.086	7 46 53.134	263 59 54.80	- 63.58	52.27	- 13 37 1.05	. . .
Br. 1147	8 10 7.92	- .64	.115	8 6 20.16	353 40 7.43	+ 41.43	52.27	+76 4 56.59	25.41
κ Cephei S. P.	16 4.42	+2.50	.124	20 12 19.80	20 10 40.57	+111.50	52.27	+77 23 20.20	25.93
Br. 1197	24 9.500	+ .888	.136	8 20 23.252	274 2 58.62	- 44.73	52.27	- 3 33 38.38	26.23
Gr. 1450 S	29 50.238	+ .564	-227.145	8 26 3.657	315 58 41.09	+ 0.94	52.27	+38 22 49.76	24.63

c +".032 c' +".015 ⊿T +3m 46s.948 Nadir 134° 56′ 17″.99 t 33.9
b + .442 at 6h 19m Equator 277 35 52 .27 B 25.75
a + .821 ρ -.090 T 35

FEBRUARY 13, 1894. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Gr. 848	4 34 41.85	− .84	− 5.719	4 34 35.29	353 20 27.26	+ 40.76	51.96	+75 45 16.06	26.01
π 5 Orionis	48 49.260	+ .861	.741	4 48 44.380	279 52 31.47	− 36.12	51.96	+ 2 16 3.39	25.57
ε Urs. Min. S. P.	56 48.91	+4.11	.752	16 56 47.27	15 22 9.37	+ 90.45	51.96	+82 12 12.14	25.22
β Eridani	5 2 43.870	+ .916	.761	5 2 39.025	272 23 14.14	− 47.24	51.96	− 5 13 25.06	26.26
24	11 47.169	+ .511	.775	5 11 41.905	317 36 20.96	+ 2.40	51.96	+40 0 31.40	. . .
γ Orionis	19 32.470	+ .830	.787	5 19 27.513	283 51 39.48	− 31.05	51.96	+ 6 15 16.47	25.41
25	25 55.738	+ .603	.796	5 25 50.545	309 42 56.62	− 4.71	51.96	+32 6 59.95	. . .
27	35 30.410	+ .890	.810	5 35 25.490	275 36 39.44	− 42.21	51.96	− 1 59 54.73	. . .
$\varkappa$ Orionis	42 49.500	+ .949	.821	5 42 44.628	267 54 19.36	− 55.30	51.96	− 9 42 27.90	26.08
9 Aurigae S	52 35.983	+ .545	.836	5 52 30.692	314 48 22.89	− 0.11	51.96	+37 12 30.82	25.44
30	6 22 46.466	+ .710	.881	6 22 41.295	297 52 58.74	− 15.83	51.96	+20 16 50.95	. . .
S. Monocerotis	35 14.650	+ .794	.900	6 35 9.544	287 35 59.60	− 26.67	51.96	+ 9 59 40.97	25.57
18 Monocerotis	42 26.230	+ .852	.910	6 42 21.172	280 8 10.70	− 35.84	51.96	+ 2 31 42.90	25.19
51 H. Cephei	51 25.60	− 8.32	.924	6 51 11.36	4 47 59.92	+ 61.09	51.96	+87 13 9.05	25.15
31	56 52.940	+ .620	.933	6 56 47.627	307 6 59.81	− 7.09	51.96	+29 31 0.76	. . .
32	7 9 4.57	− 2.57	.951	7 8 56.05	0 12 10.97	+ 52.01	51.96	+82 37 11.02	. . .
τ Draco. S. P.	17 34.63	+2.36	.963	19 17 31.03	24 24 24.88	+136.66	51.96	+73 9 10.42	25.35
25 Monocerotis	32 6.820	+ .897	.985	7 32 1.732	273 44 8.59	− 45.12	51.96	− 3 52 28.49	26.12
34	46 58.069	+ .972	− 6.007	7 46 53.034	263 59 52.38	− 63.49	51.96	− 13 37 3.07	. . .
Br. 1147	8 6 26.89	− .95	.036	8 6 19.90	353 40 10.81	+ 41.38	51.96	+76 5 0.23	25.09
$\varkappa$ Cephei S. P.	12 23.16	+2.90	.045	20 12 20.02	20 10 44.25	+111.38	51.96	+77 23 16.33	25.88
Br. 1197	20 28.400	+ .891	.057	8 20 23.234	274 2 56.74	− 44.69	51.96	− 3 33 39.91	26.46
Gr. 1450 N	26 9.081	+ .510	− 6.066	8 26 3.525	315 58 42.23	+ 0.94	51.96	+38 22 51.21	24.62

Transits; 5 wires.

c +ˢ.006 c' −ˢ.011 ΔT −5ˢ.871 Nadir 134° 56′ 17″.79 t 38.0

b + .438 at 6ʰ.5 Rate −ˢ.005 at 6ʰ 15ᵐ Equator 277 35 51 .96 B 25.96

a + .881 ρ −.090 T 39

FEBRUARY 14, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Gr. 848	4 34 43.50	− .87	− 7.404	4 34 35.23	353 20 27.71	+ 40.53	51.26	+75 45 16.98	25.56
π 5 Orionis	48 51.000	+ .760	.421	4 48 44.339	279 52 30.72	− 35.90	51.26	+ 2 16 3.56	25.76
ε Urs. Min. S. P.	56 50.97	+3.87	.431	16 56 47.41	15 22 9.23	+ 89.90	51.26	+82 12 12.13	25.77
β Eridani	5 2 45.658	+ .812	.438	5 2 39.032	272 23 13.60	− 46.94	51.26	− 5 13 24.60	26.15
24	11 48.964	+ .432	.450	5 11 41.946	317 36 20.90	+ 2.38	51.26	+40 0 32.02	. . .
γ Orionis	19 34.222	+ .732	.460	5 19 27.494	283 51 38.83	− 30.84	51.26	+ 6 15 16.73	25.50
25	25 57.566	+ .520	.467	5 25 50.619	309 42 55.68	− 4.68	51.26	+32 6 59.74	. . .
27	35 32.186	+ .789	.480	5 35 25.495	275 36 38.00	− 41.91	51.26	− 1 59 55.17	. . .
$\varkappa$ Orionis	42 51.278	+ .844	.489	5 42 44.633	267 54 17.77	− 54.90	51.26	− 9 42 28.39	26.88
9 Aurigae N	52 37.840	+ .465	.501	5 52 30.804	314 48 22.45	− 0.12	51.26	+37 12 31.07	25.64
30	6 22 48.253	+ .626	.539	6 22 41.340	297 52 58.73	− 15.72	51.26	+20 16 51.75	. . .
S Monocerotis	35 16.428	+ .705	.554	6 35 9.579	287 35 58.11	− 26.48	51.26	+ 9 59 40.37	26.53
18 Monocerotis	42 27.979	+ .758	.563	6 42 21.174	280 8 9.62	− 35.59	51.26	+ 2 31 42.77	25.63
51 H. Cephei	51 26.10	− 7.87	.574	6 51 10.66	4 47 59.54	+ 60.64	51.26	+87 13 8.92	25.91
31	56 54.732	+ .545	.581	6 56 47.696	307 6 58.82	− 7.04	51.26	+29 31 0.52	. . .
32	7 9 5.91	− 2.46	.596	7 8 55.85	0 12 10.40	+ 51.61	51.26	+82 37 10.75	. .
τ Draco. S. P.	17 36.28	+2.19	.607	19 17 30.86	24 24 25.58	+135.60	51.26	+73 9 10.08	25.66
25 Monocerotis	32 8.600	+ .802	.625	7 32 1.777	273 44 7.17	− 44.76	51.26	− 3 52 28.85	26.77
34	46 59.809	+ .871	.644	7 46 53.036	263 59 50.97	− 62.99	51.26	− 13 37 3.28	. . .
Br. 1147	8 6 28.49	− .90	.668	8 6 19.92	353 40 10.07	+ 41.05	51.26	+76 4 59.86	26.10
$\varkappa$ Cephei S. P.	12 24.90	+2.68	.675	20 12 19.90	20 10 44.46	+110.51	51.26	+77 23 16.29	26.53
Br. 1197	20 30.050	+ .799	.686	8 20 23.163	274 2 55.70	− 44.34	51.26	− 3 33 39.90	26.71
Gr. 1450 S	26 10.838	+ .452	− 7.693	8 26 3.597	315 58 41.57	+ 0.93	51.26	+38 22 51.24	25.07

c −ˢ.003 c' −ˢ.020 ΔT −7ˢ.529 Nadir 134° 56′ 17″.50 t 40.8

b + .389 at 6ʰ 15ᵐ Equator 277 35 51 .26 B 25.93

a + .801 ρ −.075 T 42

FEBRUARY 26, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
9 Aurigae S	5 52 57.928	+ .444	− 27.831	5 52 30.541	314 48 23.10	− 0.12	52.17	+37 12 30.81	25.80
δ Urs. Min. S. P.	6 6 38.12	+ 7.44	.849	18 6 17.71	10 58 19.77	+ 75.17	52.17	+86 36 17.23	25.29
8 Monocerotis	18 37.158	+ .698	.865	6 18 9.991	282 15 14.41	− 32.54	52.17	+ 4 38 49.70	25.37
51 Aurigae N	31 47.675	+ .413	.882	6 31 20.206	317 5 5.28	+ 1.90	52.17	+39 29 15.01	25.62
18 Monocerotis	42 48.258	+ .711	.897	6 42 21.072	280 8 9.78	− 35.22	52.17	+ 2 31 42.39	24.81
51 H. Cephei	51 42.22	− 7.46	.909	6 51 6.85	4 48 3.91	+ 60.00	52.17	+87 13 11.74	25.07
λ Geminorum	7 12 28.634	+ .611	.936	7 12 1.309	294 20 8.46	− 19.04	52.17	+16 43 57.25	26.14
τ Draco. S. P.	17 57.57	+ 2.07	.944	19 17 31.70	24 24 31.56	+134.20	52.17	+73 9 6.41	24.47
25 Monocerotis	32 28.880	+ .749	.963	7 32 1.666	273 44 6.88	− 44.32	52.17	− 3 52 29.61	25.81
33	45 18.452	+ .891	.980	7 44 51.363	253 1 42.93	− 94.56	52.17	−24 35 43.80	. . .
36	53 29.08	− 21.33	.992	7 52 39.76	6 32 4.47	+ 63.81	52.17	+88 57 16.05	. . .
38	8 2 48.22	− .290	− 28.004	8 2 19.926	346 22 44.13	+ 30.97	52.17	+68 47 22.93	. . .
41	32 31.530	+ .679	.044	8 32 4.165	283 40 46.00	− 30.76	52.17	+ 6 4 23.07	. . .
43	37 38.325	+ .566	.050	8 37 10.841	299 27 6.62	− 14.04	52.17	+21 51 0.41	. . .
α Cancri	53 10.486	+ .636	.071	8 52 43.051	289 52 19.49	− 23.69	52.17	+12 16 3.63	25.73
46	9 2 29.422	+ .644	.083	9 2 1.983	288 41 56.26	− 24.97	52.17	+11 5 39.12	. . .
9 Hydrae	9 19.937	+ .698	.092	9 8 52.543	280 22 5.07	− 34.88	52.17	+ 2 45 38.02	25.47
1 H. Draconis	22 40.23	− 2.07	.111	9 22 10.05	359 22 51.16	+ 49.60	52.17	+81 47 48.59	25.58
β Cephei S. P.	27 38.90	+ 1.88	.117	21 27 12.56	27 27 41.41	+158.98	52.17	+70 5 31.78	25.54
o Leonis	35 58.772	+ .646	.128	9 35 31.290	287 58 42.80	− 25.74	52.17	+10 22 24.89	25.68
Gr. 1586	49 29.54	− .62	.146	9 49 0.77	350 58 19.32	+ 36.79	52.17	+73 23 3.94	26.00
π Leonis	55 5.879	+ .656	− 28.153	9 54 38.382	286 9 25.64	− 27.79	52.17	+ 8 33 5.68	25.37

c −ˢ.010 *c′* −ˢ.027 ΔT −28ˢ.016 Nadir 134° 56′ 17″.72 *t* 47.1
b + .367 at 8ʰ Rate −ˢ.005 at 8ʰ 10ᵐ Equator 277 35 52 .17 B 25.99
a + .753 ρ − .080 T 47

FEBRUARY 27, 1894. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
9 Aurigae N	5 52 59.564	+ .433	− 29.461	5 52 30.536	314 48 23.10	− 0.12	51.59	+37 12 31.39	25.59
δ Urs. Min. S. P.	6 6 40.89	+ 6.61	.479	18 6 18.02	10 58 18.78	+ 75.71	51.59	+86 36 17.10	25.64
8 Monocerotis	18 38.816	+ .660	.495	6 18 9.981	282 15 14.27	− 32.83	51.59	+ 4 38 49.85	25.53
51 Aurigae S	31 49.304	+ .411	.512	6 31 20.203	317 5 4.53	+ 1.92	51.59	+39 29 14.86	26.18
18 Monocerotis	42 49.901	+ .673	.527	6 42 21.047	280 8 9.45	− 35.65	51.59	+ 2 31 42.21	25.30
51 H. Cephei	51 42.26	− 6.50	.539	6 51 6.22	4 48 1.35	+ 60.79	51.59	+87 13 10.55	26.80
λ Geminorum	7 12 30.334	+ .588	.567	7 12 1.355	294 20 7.85	− 19.34	51.59	+16 43 56.92	26.81
τ Draco. S. P.	17 59.37	+ 1.87	.574	19 17 31.67	24 24 27.90	+136.36	51.59	+73 9 7.33	25.94
25 Monocerotis	32 30.544	+ .710	.593	7 32 1.661	273 44 7.09	− 45.06	51.59	− 3 52 29.56	26.03
33	45 20.117	+ .835	.610	7 44 51.342	253 1 43.55	− 96.11	51.59	−24 35 44.15	. . .
36	53 27.70	− 18.48	.621	7 52 39.60	6 32 3.31	+ 64.87	51.59	+88 57 16.59	. . .
38	8 2 49.687	− .200	.634	8 2 19.853	346 22 43.31	+ 31.48	51.59	+68 47 23.20	. . .
41	32 33.094	+ .653	.674	8 32 4.073	283 40 45.23	− 31.25	51.59	+ 6 4 22.39	. . .
43	37 40.011	+ .553	.682	8 37 10.882	299 27 5.92	− 14.29	51.59	+21 51 0.04	. . .
α Cancri	53 12.043	+ .616	.701	8 52 42.958	289 52 19.59	− 24.19	51.59	+12 16 3.81	25.88
46	9 2 31.058	+ .624	.713	9 2 1.969	288 41 55.91	− 25.53	51.59	+11 5 38.79	. . .
9 Hydrae	9 21.582	+ .672	.722	9 8 52.532	280 22 5.05	− 35.67	51.59	+ 2 45 37.79	25.99
1 H. Draconis	22 41.60	− 1.71	− 29.740	9 22 10.15	——			+81 47 ——	. . .

Observing ended by dense clouds. Last half hour through clouds.

c −ˢ.006 *c′* −.023 ΔT −29ˢ.600 Nadir 134° 56′ 17″.51 *t* 39.3
b + .366 at 7ʰ 38ᵐ Equator 277 35 51 .59 B 25.99
a + .691 ρ − .080 6 stars. T 42

FEBRUARY 28, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
9 Aurigae S	5 53 1.221	+ .424	−31.105	5 52 30.540	314 48 23.35	− 0.12	51.47	+37 12 31.76	25.08
δ Urs. Min. S. P.	6 6 42.95	+ 6.96	.118	18 6 18.79	10 58 18.65	+ 75.33	51.47	+86 36 17.49	25.98
8 Monocerotis	18 40.416	+ .663	.133	6 18 9.946	282 15 13.81	− 32.63	51.47	+ 4 38 49.71	25.47
51 Aurigae N	31 50.918	+ .403	.150	6 31 20.171	317 5 4.57	+ 1.91	51.47	+39 29 15.01	25.91
18 Monocerotis	42 51.530	+ .677	.164	6 42 21.043	280 8 8.76	− 35.34	51.47	+ 2 31 41.95	25.34
51 H. Cephei	51 44.42	− 6.90	.175	6 51 6.35	4 48 3.33	+ 60.22	51.47	+87 13 12.08	25.27
λ Geminorum	7 12 31.927	+ .588	.200	7 12 1.315	294 20 7.24	− 18.25	51.47	+16 43 57.52	26.04
τ Draco. S. P.	18 0.99	+ 1.94	.208	19 17 31.72	24 24 30.50	+134.67	51.47	+73 9 6.30	24.93
25 Monocerotis	32 32.201	+ .716	.226	7 32 1.691	273 44 5.46	− 44.46	51.47	− 3 52 30.47	26.69
33	45 21.781	+ .846	.242	7 44 51.385	253 1 41.93	− 94.81	51.47	−24 35 44.35	. . .
36	53 29.10	−19.59	.251	7 52 38.26	6 32 4.08	+ 63.98	51.47	+88 57 16.59	. . .
38	8 2 51.30	− .240	.263	8 2 19.797	346 22 43.67	+ 31.04	51.47	+68 47 23.24	. . .
41	32 34.808	+ .655	.301	8 32 4.162	283 40 44.32	− 30.80	51.47	+ 6 4 22.05	. . .
43	37 41.561	+ .552	.307	8 37 10.806	299 27 5.37	− 14.06	51.47	+21 50 59.84	. . .
α Cancri	53 13.743	+ .617	.326	8 52 43.034	289 52 18.51	− 23.73	51.47	+12 16 3.31	26.18
46	9 2 32.707	+ .624	.338	9 2 1.993	288 41 55.21	− 25.01	51.47	+11 5 38.73	. . .
9 Hydrae	9 23.187	+ .675	.347	9 8 52.515	280 22 4.02	− 34.15	51.47	+ 2 45 38.40	25.12
1 H. Draconis	22 43.36	− 1.85	.363	9 22 10.15	359 22 50.77	+ 49.70	51.47	+81 47 49.00	25.91
β Cephei S. P.	27 42.37	+ 1.75	.370	21 27 12.75	——			+70 5 ——	. . .
o Leonis	36 2.057	+ .629	.380	9 35 31.306	287 58 42.45	− 25.79	51.47	+10 22 25.19	25.49
Gr. 1586	49 32.71	− .52	.397	9 49 0.79	350 58 19.96	+ 36.87	51.47	+73 23 5.36	25.27
π Leonis	55 9.143	+ .641	−31.404	9 54 38.380	286 9 24.78	− 27.85	51.47	+ 8 33 5.46	25.66

c −ˢ.010 *c′* −ˢ.027 ΔT −31ˢ.272 Nadir 134° 56′ 17″.22 *t* 43.6
b + .363 at 8ʰ 10ᵐ Equator 277 35 51 .47 B 25.87
a + .709 ρ −.075 T 44

MARCH 12, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
9 Aurigae S	5 53 20.864	+ .405	−51.091	5 52 30.178	314 48 22.68	− 0.12	50.85	+37 12 31.71	25.34
δ Urs. Min. S. P.	6 7 5.39	+ 8.83	.109	18 6 23.11	10 58 20.58	+ 74.07	50.83	+86 36 16.18	25.69
8 Monocerotis	19 0.158	+ .718	.125	6 18 9.751	282 15 12.07	− 32.08	50.81	+ 4 38 49.18	25.64
51 Aurigae N	32 10.689	+ .376	.143	6 31 19.922	317 5 4.98	+ 1.88	50.79	+39 29 16.07	25.42
18 Monocerotis	43 11.301	+ .735	.158	6 42 20.878	280 8 7.33	− 34.76	50.77	+ 2 31 41.80	26.01
51 H. Cephei	52 2.36	− 9.06	.170	6 51 2.13	4 48 5.04	+ 59.24	50.76	+87 13 13.52	25.47
λ Geminorum	7 12 51.720	+ .619	.197	7 12 1.142	294 20 7.30	− 18.81	50.72	+16 43 57.77	25.80
τ Draco. S. P.	18 21.16	+ 2.36	.204	19 17 ——	24 24 33.07	+132.56	50.71	+73 9 5.08	25.77
25 Monocerotis	32 51.966	+ .787	.224	7 32 1.529	273 44 4.53	− 43.78	50.69	− 3 52 29.94	25.44
33	45 41.438	+ .959	.241	7 44 51.156	253 1 38.43	− 93.42	50.67	−24 35 45.66	. . .
36	53 46.72	−25.41	.252	7 52 30.06	6 32 6.08	+ 63.05	50.66	+88 57 18.47	. . .
38	8 3 11.166	− .450	.264	8 2 19.452	346 22 44.88	+ 30.60	50.64	+68 47 21.84	. . .
41	32 54.687	+ .687	.304	8 32 4.070	283 40 43.29	− 30.40	50.59	+ 6 4 22.30	. . .
43	38 1.511	+ .547	.311	8 37 10.747	299 27 5.04	− 13.88	50.58	+21 51 0.58	. . .
α Cancri	53 33.615	+ .635	.332	8 52 42.918	289 52 17.49	− 23.45	50.55	+12 16 3.49	25.91
46	9 2 52.557	+ .645	.344	9 2 1.858	288 41 54.06	− 24.73	50.54	+11 5 38.79	. .
9 Hydrae	9 43.037	+ .714	.353	9 8 52.398	280 22 2.68	− 34.57	50.53	+ 2 45 37.58	25.26
1 H. Draconis	22 ——			9 22 ——	359 22 53.78	+ 49.18	50.51	+81 47 52.45	25.53
o Leonis	36 21.965	+ .652	.388	9 35 31.229	287 58 40.66	− 25.54	50.48	+10 22 24.64	25.91
Gr. 1586	49 52.89	− .89	.406	9 49 0.59	350 58 21.87	+ 36.52	50.46	+73 23 7.93	25.85
π Leonis	55 29.186	+ .667	.414	9 54 38.439	286 9 23.14	− 27.59	50.45	+ 8 33 5.10	25.71
9 H. Draconis	10 27 5.44	− 1.25	.456	10 26 12.73	353 50 45.84	+ 40.53	50.40	+76 15 35.97	25.75

τ Draco. 3 wires only. Chronograph current interrupted at 9ʰ.4.

c −ˢ.010 *c′* −ˢ.027 ΔT −51ˢ.275 Nadir 134° 56′ 16″.20 at 8ʰ.2 *t* 50.3
b + .339 at 8ʰ.2 Rate −ˢ.01 at 8ʰ 10ᵐ Equator 277 35 50 .62 at 8 .2 B 25.88
a + .833 ρ −.080 Rate −0″.10 hourly T 53

MARCH 14, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
18 Monocerotis	6 43 14.440	+ .715	− 54.331	6 42 20.824	280 8 6.65	− 35.22	50.05	+ 2 31 41.38	25.74
51 Cephei	52 3.71	− 8.54	.343	6 51 0.83	4 48 4.00	+ 60.04	50.05	+87 13 13.99	25.54
λ Geminorum	7 12 54.937	+ .600	.369	7 12 1.168	294 20 6.42	− 19.06	50.05	+16 43 57.31	26.63
β Canis Min.	22 18.910	+ .664	.382	7 21 25.192	286 6 29.66	− 27.90	50.05	+ 8 30 11.71	26.06
λ Urs. Min. S. P.	28 43.83	+25.52	.391	19 28 14.96	8 36 33.20	+ 68.83	50.05	+88 58 8.02	26.84
35	47 55.983	+ .505	.414	7 47 2.074	304 38 30.26	− 9.22	50.05	+27 2 30.99	. .
37	55 26.397	+ .518	.423	7 54 32.492	303 17 5.21	− 10.46	50.05	+25 41 4.70	. . .
39	8 7 3.194	+ .585	.439	8 6 9.340	295 34 12.82	− 17.83	50.05	+17 58 4.94	. . .
κ Cephei S. P.	13 13.80	+ 2.72	.447	20 12 22.07	20 10 52.42	+109.44	50.05	+77 23 8.19	25.45
Br. 1197	21 16.783	+ .751	.458	8 20 23.076	274 2 51.99	− 43.90	50.05	− 3 33 41.96	26.17
42	34 8.169	+ .695	.473	8 33 14.394	281 19 10.33	− 33.72	50.05	+ 3 42 46.56	. . .
44	40 14.768	+ .994	.481	8 39 21.281	244 49 43.36	−139.00	50.05	− 32 48 25.69	. . .
45	9 0 43.473	+ .376	.508	8 59 49.341	316 28 27.33	+ 1.36	50.05	+38 52 38.64	. . .
Gr. 1586	49 55.89	− .70	.571	9 49 0.62	350 58 22.13	+ 36.86	50.05	+73 23 8.94	25.64
π Leonis	55 32.368	+ .652	.577	9 54 38.443	286 9 23.49	− 27.84	50.05	+ 8 33 5.60	25.46
24 Cephei S. P.	10 8 33.53	+ 2.02	.594	22 7 40.96	25 44 30.23	+144.13	50.05	+71 48 55.69	24.30
49	15 37.29	+ .558	.604	10 14 9.683	297 58 41.22	− 15.44	50.05	+20 22 35.73	. . .
9 H. Draconis	27 8.56	− 1.00	.620	10 26 12.94	353 50 46.68	+ 40.80	50.05	+76 15 37.43	25.12
l Leonis	44 36.925	+ .629	.641	10 43 42.913	288 42 29.99	− 24.93	50.05	+11 6 15.01	25.59
χ Leonis	11 0 28.710	+ .652	− 54.662	10 59 34.700	285 30 43.35	− 28.56	50.05	+ 7 54 24.74	25.90

c +″.007 c' −″.010 ΔT −54ˢ.489 Nadir 134° 56′ 15″.99 t 43.6
b +.323 at 8ʰ 46ᵐ Equator 277 35 50 .05 B 25.81
a +.786 at 8ʰ.4 Rate −ˢ.01 ρ −.077 T 44

MARCH 15, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
18 Monocerotis	6 43 16.004	+ .717	− 55.892	6 42 ——	280 8 7.29	− 34.96	50.60	+ 2 31 ——	25.21
λ Geminorum	7 12 56.494	+ .609	.924	7 12 ——	294 20 7.01	− 18.91	50.60	+16 43 ——	26.28
β Canis Min.	22 20.446	+ .673	.934	7 21 ——	286 6 30.00	− 27.66	50.60	+ 8 30 ——	25.86
λ Urs. Min. S. P.	28 47.67	+25.58	.940	19 28 ——	8 36 35.22	+68.24	50.60	+88 58 7.15	25.94
35	47 57.490	+ .518	.962	7 47 2.046	304 38 30.66	− 9.14	50.60	+27 2 30.91	. . .
37	55 27.962	+ .531	.970	7 54 32.523	303 17 5.14	− 10.37	50.60	+25 41 4.16	. . .
39	8 7 4.780	+ .597	− 55.982	8 6 9.395	295 34 13.44	− 17.67	50.60	+17 58 5.16	. . .

Observations ended by clouds.

c −ˢ.013 c' −ˢ.030 ΔT −55ˢ.910 Nadir 134° 56′ 16″.4 t 46.7
b +.35 at 7ʰ 0ᵐ Equator 277 35 50 .6 B 25.79
a +.79 ρ −.065 T 49

MARCH 21, 1894. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
51 H. Cephei	6 52 11.47	− 8.15	−65.696	6 50 57.61	4 48 5.80	+ 61.37	51.24	+87 13 15.93	24.08
λ Geminorum	7 13 6.043	+ .690	.732	7 12 1.001	294 20 8.29	− 19.49	51.24	+16 43 57.56	26.40
β Canis Min.	22 30.085	+ .758	.747	7 21 25.096	286 6 32.25	− 28.51	51.24	+ 8 30 12.50	25.15
λ Urs. Min. S. P.	29 2.90	+25.03	.759	19 28 22.17	8 36 34.73	+ 70.35	51.24	+88 58 6.16	25.79
35	48 7.218	+ .597	.790	7 47 2.025	304 38 32.09	− 9.43	51.24	+27 2 31.42	. . .
37	55 37.678	+ .612	.803	7 54 32.487	303 17 6.62	− 10.70	51.24	+25 41 4.68	. . .
39	8 7 14.493	+ .680	.821	8 6 9.352	295 34 15.28	− 18.24	51.24	+17 58 5.80	. . .
κ Cephei S. P.	13 25.63	+ 2.77	.832	20 12 22.57	20 10 52.31	+111.96	51.24	+77 23 6.97	25.27
Br. 1197	21 28.096	+ .851	.845	8 20 23.102	274 2 54.06	− 44.92	51.24	− 3 33 42.10	25.94
42	34 19.486	+ .796	.867	8 33 14.415	281 19 12.33	− 34.51	51.24	+ 3 42 46.58	. . .
44	40 25.804	+ 1.103	.877	8 39 21.030	244 49 47.79	−142.31	51.24	− 32 48 25.76	. . .
α Cancri	53 48.055	+ .727	.900	8 52 42.882	289 52 19.44	− 24.28	51.24	+12 16 3.92	25.70
45	9 0 54.768	+ .469	.911	8 59 49.326	316 28 29.49	+ 1.39	51.24	+38 52 39.64	. . .
Gr. 1586	50 7.10	− .64	.993	9 49 0.47	350 58 24.07	+ 37.76	51.24	+73 23 10.59	25.63
π Leonis	55 43.545	+ .758	−66.003	9 54 38.300	286 9 25.25	− 28.53	51.24	+ 8 33 5.48	25.48
24 Cephei S. P.	10 8 44.98	+ 2.14	.025	22 7 41.10	25 44 28.06	+147.93	51.24	+71 48 55.25	25.43
49	15 14.982	+ .660	.035	10 14 9.607	297 58 43.95	− 15.85	51.24	+20 22 36.86	. . .
9 H. Draconis	27 19.79	− .96	.055	10 26 12.77	353 50 48.16	+ 41.93	51.24	+76 15 38.85	25.46
l Leonis	44 48.295	+ .736	.085	10 43 42.946	288 42 32.17	− 25.60	51.24	+11 6 15.33	25.23
χ Leonis	11 0 40.075	+ .762	−66.111	10 59 34.726	285 30 45.18	− 29.27	51.24	+ 7 54 24.67	25.78

Transits 5 wires.

c +ˢ.026	*c′* +ˢ.009	ΔT −65ˢ.928	Nadir 134° 56′ 16″.93	*t* 33.3
b + .378		at 9ʰ 11ᵐ	Equator 277 35 51 .24	B 25.86
a + .848		ρ − .100		T 35

MARCH 22, 1894. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
18 Monocerotis	6 43 27.268	+ .765	−67.326	6 42 20.707	280 8 8.49	− 35.79	50.80	+ 2 31 41.90	25.34
51 H. Cephei	52 12.93	− 8.41	.338	6 50 57.18	4 48 1.96	+ 61.05	50.80	+87 13 12.21	(28.14)
λ Geminorum	7 13 7.765	+ .653	.369	7 12 1.049	294 20 7.31	− 19.40	50.80	+16 43 57.11	27.16
β Canis Min.	22 31.717	+ .719	.384	7 21 25.052	286 6 31.29	− 28.39	50.80	+ 8 30 12.10	25.85
λ Urs. Min. S. P.	29 5.65	+25.68	.391	19 28 23.94	8 36 34.65	+ 70.07	50.80	+88 58 6.08	26.09
35	48 8.781	+ .561	.420	7 47 1.922	304 38 31.19	− 9.40	50.80	+27 2 30.99	. . .
37	55 39.238	+ .575	.429	7 54 32.384	303 17 6.01	− 10.65	50.80	+25 41 4.56	. . .
39	8 7 16.072	+ .643	.445	8 6 9.270	295 34 14.22	− 18.15	50.80	+17 58 5.27	. . .
κ Cephei S. P.	13 27.23	+ 2.81	.454	20 12 22.59	20 10 52.68	+111.39	50.80	+77 23 6.73	25.48
Br. 1197	21 29.589	+ .810	.465	8 20 22.934	274 2 53.40	− 44.65	50.80	− 3 33 42.05	26.14
42	34 21.018	+ .756	.483	8 33 14.291	281 19 11.24	− 34.27	50.80	+ 3 42 46.17	. . .
44	40 27.469	+ 1.059	.492	8 39 21.036	244 49 45.45	−141.27	50.80	− 32 48 26.62	. . .
α Cancri	53 49.723	+ .690	.511	8 52 42.902	289 52 18.19	− 24.09	50.80	+12 16 3.30	26.77
45	9 0 56.413	+ .432	.521	8 59 49.324	316 28 29.21	+ 1.37	50.80	+38 52 39.78	. . .
Gr. 1586	50 8.68	− .70	.590	9 49 0.39	350 58 24.30	+ 37.37	50.80	+73 23 10.87	25.89
π Leonis	55 45.202	+ .719	.599	9 54 38.322	286 9 24.99	− 28.25	50.80	+ 8 33 5.96	25.29
24 Cephei S. P.	10 8 46.64	+ 2.17	.617	22 7 41.19	25 44 31.52	+146.30	50.80	+71 48 52.98	23.71
49	15 16.642	+ .623	.627	10 14 9.638	297 58 43.40	− 15.68	50.80	+20 22 36.92	. . .
9 H. Draconis	27 21.51	− 1.03	.643	10 26 12.84	353 50 48.98	+ 41.45	50.80	+76 15 39.63	25.26
l Leonis	44 49.888	+ .699	.668	10 43 42.919	288 42 31.48	− 25.32	50.80	+11 6 15.36	25.52
χ Leonis	11 0 41.702	+ .725	−67.691	10 59 34.736	285 30 44.85	− 28.99	50.80	+ 7 54 25.06	25.69

c ˢ.000	*c′* −ˢ.017	ΔT −67ˢ.499	Nadir 134° 56′ 16″.77	*t* 39.4
b + .375		at 8ʰ 46ᵐ	Equator 277 35 50 .80	B 25.99
a + .828		ρ − .085		T 41

MARCH 23, 1894. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
18 Monocerotis	6 43 28.961	+ .777	−69.055	6 42 20.683	280 8 8.85	− 35.36	51.43	+ 2 31 42.06	24.83
51 H. Cephei	52 14.98	− 8.48	.068	6 50 57.43	4 48 5.89	+ 60.30	51.43	+87 13 14.76	25.28
λ Geminorum	7 13 9.458	+ .664	.100	7 12 1.022	294 20 8.04	− 19.16	51.43	+16 43 57.45	26.49
β Canis Min.	22 33.417	+ .730	.114	7 21 25.033	286 6 31.11	− 28.05	51.43	+ 8 30 11.63	25.97
λ Urs. Min. S. P.	29 6.95	+25.94	.124	19 28 23.77	8 36 36.02	+ 69.22	51.43	+88 58 6.19	25.95
35	——			7 47 ——	304 38 31.68	− 9.28	51.43	+27 2 30.97	. . .
39	8 7 17.693	+ .654	.181	8 6 9.166	295 34 14.19	− 17.95	51.43	+27 58 4.81	. . .
κ Cephei S. P.	13 29.04	+ 2.85	.190	20 12 22.70	20 10 53.70	+110.16	51.43	+77 23 7.57	26.14
Br. 1197	21 31.298	+ .822	.202	8 20 22.918	274 2 52.71	− 44.20	51.43	− 3 32 42.92	26.63
42	34 22.696	+ .768	.221	8 33 14.243	281 19 11.29	− 33.97	51.43	+ 3 42 45.89	. . .
44	40 29.190	+ 1.073	.231	8 39 21.032	244 49 44.40	−140.07	51.43	− 32 48 27.10	. . .
α Cancri	53 51.401	+ .701	.251	8 52 42.851	289 52 19.18	− 24.13	51.43	+12 16 3.62	26.13
45	9 0 58.124	+ .440	.261	8 59 49.303	316 28 29.17	+ 1.36	51.43	+38 52 39.10	. . .
Gr. 1586	50 10.36	− .70	.335	9 49 0.33	350 58 25.77	+ 36.99	51.43	+73 23 11.33	25.33
π Leonis	55 46.988	+ .730	.344	9 54 38.374	286 9 25.22	− 27.93	51.43	+ 8 33 5.86	25.06
24 Cephei S. P.	10 8 48.54	+ 2.19	.363	22 7 41.37	25 44 32.44	+144.58	51.43	+71 48 54.41	25.05
49	15 18.321	+ .633	.373	10 14 9.581	297 58 43.48	− 15.49	51.43	+20 22 36.56	. . .
9 H. Draconis	27 23.02	− 1.03	.391	10 26 12.60	353 50 50.59	+ 40.90	51.43	+76 15 40.06	24.76
l Leonis	44 51.617	+ .710	.418	10 43 42.909	288 42 31.99	− 24.97	51.43	+11 6 15.59	24.97
χ Leonis	11 0 43.438	+ .736	−69.441	10 59 34.733	285 30 45.51	− 28.58	51.43	+ 7 54 25.49	24.92

Chronograph failed at $7^h.6$.

c ˢ.000 c' −ˢ.017 ΔT $-69^s.240$ Nadir 134° 56′ 17″.06 t 44.3

b + .382 at $8^h\ 47^m$ Equator 277 35 51 .43 B 25.94

a + .839 ρ − .090 T 45

APRIL 2, 1894. CIR. E, WT. 1, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
Br. 2777 S. P.	9 8 54.33	+2.30	−85.112	21 7 31.52	——			+77 41 ——	. . .
1 H. Draconis	23 34.47	− 1.79	.132	9 22 7.55	359 22 59.31	+49.52	51.37	+81 47 57.46	25.42
o Leonis	36 55.665	+ .606	.149	9 35 31.122	287 58 42.32	− 25.70	51.37	+10 22 25.25	25.75
6 Sextantis	47 19.423	+ .693	.163	9 45 54.953	273 51 40.29	− 44.01	51.37	− 3 44 55.09	25.85
π Leonis	56 2.829	+ .623	.175	9 54 38.277	286 9 24.95	− 27.75	51.37	+ 8 33 5.83	25.25
47	10 1 23.599	+ .752	.182	9 59 59.170	265 3 38.40	− 59.85	51.37	−12 33 12.82	. . .
48	11 49.833	− .134	.196	10 10 24.503	343 13 46.51	+27.18	51.37	+65 38 22.32	. . .
9 H. Draconis	27 38.43	− .85	.217	10 26 12.36	353 50 53.43	+40.73	51.37	+76 15 42.79	24.50
50	42 0.822	+ .644	.236	10 40 36.230	284 32 8.88	− 29.64	51.37	+ 6 55 47.87	. . .
51	56 31.494	+ .666	.255	10 55 6.905	281 47 28.01	− 33.01	51.37	+ 4 11 3.63	. . .
52	11 2 56.151	+ .678	.264	11 1 31.565	280 8 8.47	− 35.15	51.37	+ 2 31 41.95	. . .
σ Leonis	17 6.658	+ .656	.283	11 15 42.031	284 12 49.78	− 30.08	51.37	+ 6 36 28.33	25.20
54	23 55.501	+ .677	.292	11 22 30.886	281 2 39.09	− 34.01	51.37	+ 3 26 13.71	. . .
γ Cephei S. P.	36 15.28	+2.51	.308	23 34 52.48	——			+77 2 ——	. . .
β Virginis	46 36.836	+ .691	−85.322	11 45 12.205	279 57 58.82	− 35.43	51.37	+ 2 21 32.02	25.99

Observations closed on account of high wind and bad conditions.

c −ˢ.010 c' −ˢ.027 ΔT $-1^m\ 25^s.220$ Nadir 134° 56′ 16″.98 t 47.4

b + .350 at $10^h\ 29^m$ Equator 277 35 51 .37 B 25.95

a + .699 at $10^h.1$ Rate +ˢ.03 ρ − .080 T 48

APRIL 3, 1894. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Br. 2777 S. P.	9 8 55.72	+2.50	−86.579	21 7 31.64	19 52 40.81	+106.17	51.97	+77 41 24.99	24.59
1 H. Draconis	23 35.96	−1.97	.593	9 22 7.40	359 23 0.55	+ 48.89	51.97	+81 47 57.47	25.43
o Leonis	36 57.072	+ .613	.616	9 35 31.069	287 58 42.21	− 25.37	51.97	+10 22 24.87	25 99
6 Sextantis	47 20.866	+ .700	.630	9 45 54.936	273 51 40.15	− 43.45	51.97	− 3 44 55.27	25.84
π Leonis	56 4.272	+ .624	.642	9 54 38.254	286 9 24.88	− 27.40	51.97	+ 8 33 5 51	25.43
47	10 1 25.014	+ .751	.649	9 59 59.116	265 3 38.72	− 59.11	51.97	−12 33 12.36	. . .
48	11 51.190	− .140	.663	10 10 24.387	343 13 47.77	+ 26.85	51.97	+65 38 22.65	. . .
9 H. Draconis	27 39.79	− .84	.684	10 26 12.27	353 50 54.34	+ 40 24	51.97	+76 15 42.61	24.74
50	42 2.307	+ .629	.703	10 40 36.233	284 32 8.65	− 29.26	51.97	+ 6 55 47.42	. . .
51	56 32.944	+ .645	.723	10 55 6.866	281 47 27.92	− 32.56	51.97	+ 4 11 3.39	. . .
52	11 2 57.608	+ .654	.731	11 1 31.531	280 8 8.75	− 34.65	51.97	+ 2 31 42.13	. . .
σ Leonis	17 8.137	+ .628	.750	11 15 42.015	284 12 50.00	− 29.63	51.97	+ 6 36 28.40	25.01
54	23 57.073	+ .647	.759	11 22 30.961	281 2 40.17	− 33.49	51.97	+ 3 26 14.71	. . .
γ Cephei S. P.	36 16.76	+2.31	.775	23 34 52.30	20 31 42.90	+109.30	51.97	+77 2 19.77	25 06
β Virginis	46 38.358	+ .651	.789	11 45 12.220	279 57 59.64	− 34.87	51.97	+ 2 21 32.80	25.02
η Virginis	12 15 56 937	+ .661	.828	12 14 30.770	277 31 38.50	− 38.13	51.97	− 0 4 51.60	24.55
58	31 2.717	+ .516	.848	12 29 36.385	300 48 40.58	− 12.56	51.97	+23 12 36.05	. . .
21 Cassiop. S. P.	39 57.76	+1.98	.860	0 38 32.88	23 9 17.26	+123.97	51.97	+74 23 30.74	24.18
60	48 0.799	+ .480	.871	12 46 34.388	305 42 51.99	− 8.10	51.97	+28 6 51.92	. . .
ε Virginis	58 22.257	+ .590	.885	12 56 55.962	289 7 46.53	− 24.13	51.97	+11 31 30.43	25.36
9 Virginis	13 5 55.708	+ .684	.896	13 4 29.496	272 38 0.38	− 45.38	51.97	− 4 58 36.97	25.33
Gr. 2001	24 59.69	− .46	.920	13 23 32.31	350 31 36.39	+ 35.70	51.97	+72 56 20.12	25.56
ζ Virginis	30 45.516	+ .654	−86.928	13 29 19.242	277 33 0.84	− 38.12	51.97	− 0 3 29.25	26.05

c −ˢ.016 c' −ˢ.033 ΔT −1ᵐ 26ˢ.774 Nadir 134° 56′ 17″.37 ℓ 51.0
b + .352 at 11ʰ 35ᵐ Equator 277 35 51. 97 B 25.80
a + .695 at 11ʰ.1 Rate −ˢ.01 ρ −.080 T 51

APRIL 4, 1894. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Br. 2777 S. P.	9 8 57.23	+2.63	−88.132	21 7 31.73	19 52 39.99	+106.11	51.84	+77 41 25.74	25.70
1 H. Draconis	23 37.80	−2.10	.152	9 22 7.55	359 23 0.43	+ 48.85	51.84	+81 47 57.44	25.83
o Leonis	36 58.622	+ .628	.169	9 35 31.081	287 58 42.29	− 25.35	51.84	+10 22 25.10	26.07
6 Sextantis	47 22.337	+ .718	.182	9 45 54.873	273 51 39.95	− 43.41	51.84	− 3 44 55.30	26.05
π Leonis	56 5.915	+ .638	.195	9 54 38.358	286 9 25.14	− 27.36	51.84	+ 8 33 5.94	25.25
47	10 1 26.514	+ .770	.201	9 59 59.083	265 3 38.26	− 59.03	51.84	−12 33 12.61	. . .
48	11 52.576	− .159	.216	10 10 24.201	343 13 47.94	+ 26.81	51.84	+65 38 22.91	. . .
9 H. Draconis	27 41.32	− .88	.237	10 26 12.20	353 50 53.96	+ 40.18	51.84	+76 15 42.30	25.51
50	42 3.872	+ .640	.256	10 40 36.256	284 32 9.21	− 29.22	51.84	+ 6 55 48.15	. . .
51	56 34.494	+ .654	.276	10 55 6.872	281 47 27.99	− 32.51	51.84	+ 4 11 3.64	. . .
52	11 2 59.116	+ .664	.284	11 1 31.496	280 8 9.03	− 34.60	51.84	+ 2 31 42.59	. . .
σ Leonis	17 9.666	+ .637	.303	11 15 42.000	284 12 49.81	− 29.59	51.84	+ 6 36 28.38	25.28
54	23 58.566	+ .654	.312	11 22 30.908	281 2 39.99	− 33.44	51.84	+ 3 26 14.71	. . .
γ Cephei S. P.	36 18.52	+2.34	.328	23 34 52.53	20 31 42.53	+109.14	51.84	+77 2 20.17	25.95
β Virginis	46 39.887	+ .656	.342	11 45 12.201	279 57 59.29	− 34.82	51.84	+ 2 21 32.63	25.43
η Virginis	12 15 58.466	+ .664	.381	12 14 30.749	277 31 38.07	− 38.08	51.84	− 0 4 51.85	25.01
58	31 4.195	+ .519	.401	12 29 36.313	300 48 39.93	− 12.54	51.84	+23 12 35.55	. . .
21 Cassiop. S. P.	39 59 27	+1.98	.413	0 38 32.84	23 9 17.17	+123.84	51.84	+74 24 30.83	24.80
60	48 2.336	+ .482	.424	12 46 34.394	305 42 51.94	− 8.10	51.84	+28 6 52.00	. . .
ε Virginis	58 23.815	+ .591	.438	12 56 55.968	289 7 46.24	− 24.11	51.84	+11 31 30.29	25.79
9 Virginis	13 5 57.273	+ .682	.448	13 4 29.507	272 38 0.37	− 45.36	51.84	− 4 58 36.83	25.38
Gr. 2001	25 1.30	− .44	.473	13 23 32.39	350 31 36.38	+ 35.70	51.84	+72 56 20.24	25.98
ζ Virginis	30 47.087	+ .649	−88.481	13 29 19.255	277 33 0.87	− 38.12	51.84	− 0 3 29.09	26.08

π Leonis omitted from determination of ΔT.

c −ˢ.019 c' −ˢ.036 ΔT −1ᵐ 28ˢ.342 Nadir 134° 56′ 17″.43 ℓ 51.6
b + .358 at 11ʰ 47ᵐ Equator 277 35 51 .84 B 25.81
a + .711 at 11ʰ.1 Rate −ˢ.02 ρ −.080 T 52

APRIL 5, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
Br. 2777 S. P.	9 8 58.80	+2.78	−89.699	21 7 31.90	19 52 39.28	+106.05	51.35	+77 41 26.02	26.45
1 H. Draconis	23 39.31	−2.25	.715	9 22 7.35	359 23 0.59	+ 48.82	51.35	+81 47 58.06	25.70
o Leonis	37 0.129	+ .641	.730	9 35 31.040	287 58 41.98	− 25.34	51.35	+10 22 25.29	26.19
6 Sextantis	47 23.894	+ .734	.741	9 45 54.887	273 51 39.50	− 43.41	51.35	− 3 44 55.26	26.34
π Leonis	56 7.393	+ .648	.751	9 54 38.290	286 9 24.06	− 27.37	51.35	+ 8 33 5.34	26.22
47	10 1 28.085	+ .783	.757	9 59 59.111	265 3 37.64	− 59.07	51.35	−12 33 12.78	. . .
48	11 54.211	− .182	.768	10 10 24.261	343 13 47.81	+ 26.84	51.35	+65 38 23.30	. . .
9 H. Draconis	27 42.63	− .92	.786	10 26 11.92	353 50 54.43	+ 40.26	51.35	+76 15 43.34	25.05
50	42 5.393	+ .639	.801	10 40 36.231	284 32 8.43	− 29.29	51.35	+ 6 55 47.79	. . .
51	56 36.008	+ .651	.817	10 55 6.842	281 47 27.84	− 32.58	51.35	+ 4 11 3.91	. . .
52	11 3 0.694	+ .657	.824	11 1 31.527	280 8 8.21	− 34.67	51.35	+ 2 31 42.19	. . .
σ Leonis	17 11.201	+ .627	.840	11 15 41.988	284 12 49.71	− 29.63	51.35	+ 6 36 28.73	25.32
54	24 0.123	+ .643	.847	11 22 30.919	281 2 39.18	− 33.49	51.35	+ 3 26 14.34	. . .
γ Cephei S. P.	36 19.94	+2.31	.861	23 34 52.39	20 31 41.94	+109 25	51.35	+77 2 20.16	26.58
β Virginis	46 41.408	+ .639	.873	11 45 12.174	279 57 58.58	− 34.85	51.35	+ 2 21 32.38	26.10
η Virginis	12 16 0.007	+ .639	.905	12 14 30.741	277 31 37.33	− 38.08	51.35	− 0 4 52.10	25.60
58	31 5.702	+ .496	.921	12 29 36.277	300 48 40.63	− 12.53	51.35	+23 12 36.75	. . .
21 Cassiop. S. P.	40 0.81	+1.89	.931	0 38 32.77	23 9 18.02	+123.64	51.35	+74 24 29.69	24.27
60	48 3.886	+ .459	.940	12 46 34.405	305 42 52.12	− 8.08	51.35	+28 6 52.69	. . .
ε Virginis	58 25.372	+ .558	.951	12 56 55.979	289 7 46.36	− 24.04	51.35	+11 31 30.97	25.58
9 Virginis	13 5 58.758	+ .640	.959	13 4 29.439	272 37 59.40	− 45.19	51.35	− 4 58 37.14	26.04
Gr. 2001	25 2.69	− .39	.981	13 23 32.32	350 31 37.52	+ 35.52	51 35	+72 56 21.69	25.20
ζ Virginis	30 48.673	+ .603	−89.987	13 29 19.289	277 33 0.76	− 37.93	51.35	− 0 3 28.52	25.87

c −s.022 c' −s.039 ΔT −1m 29s.860 Nadir 134° 56′ 17″.27 t 53.1
b + .353 at 11h.6 Rate −s.005 at 11h 35m Equator 277 35 51 .35 B 25.88
a + .705 at 11 .1 Rate − .04 ρ −.066 T 53

APRIL 6, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
o Virginis	12 1 21.293	+ .565	−91.406	11 59 50.452	286 55 26.47	− 26.77	51.64	+ 9 19 8.06	25.19
4 H. Draconis	8 55.46	− .80	.414	12 7 ——	355 47 27.42	+ 43.48	51.64	+78 12 19.26	25.51
η Virginis	16 1.530	+ .609	.423	12 14 30.716	277 31 37.88	− 38.46	51.64	− 0 4 52.22	25.44
58	31 7.245	+ .492	.440	12 29 36.297	300 48 40.61	− 12.67	51.64	+23 12 36.30	. . .
21 Cassiop. S. P.	40 2.47	+1.73	.451	0 38 ——	23 9 16.25	+125.10	51.64	+74 24 30.29	24.88
60	48 5.400	+ .462	.460	12 46 34.402	305 42 52.34	− 8.18	51.64	+28 6 52.52	. . .
ε Virginis	58 26.893	+ .553	.472	12 56 55.974	289 7 46.60	− 24.36	51.64	+11 31 30.60	25.75
9 Virginis	13 6 0.323	+ .631	−91.481	13 4 29.473	272 37 59.95	− 45.83	51.64	− 4 58 37.52	26.11

c −s.019 c' −s.036 ΔT −1m 31s.445 Nadir 134° 56′ 17″.26 t 48.6
b + .351 at 12h 35m Equator 277 35 51 .64 B 25.92
a + .60 ρ −.07 T 49

APRIL 9, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
9 H. Draconis. .	10 27 48.61	− .79	−95.854	10 26 11.97	353 50 55.37	+ 39.80	51.14	+76 15 44.03	24.84
1 Leonis	45 18.029	+ .693	.875	10 43 42.847	288 42 30.78	− 24.30	51.14	+11 6 15.34	25.93
χ Leonis	11 1 9.822	+ .714	.893	10 59 34.643	285 30 43.89	− 27.81	51.14	+ 7 54 24.94	25.85
π Cephei S. P. .	5 59.53	+ 2.22	.899	23 4 25.85	22 45 10.93	+120.11	51.14	+74 52 40.10	24.77
σ Leonis	17 17.144.	+ .721	.912	11 15 41.953	284 12 49.21	− 29.30	51.14	+ 6 36 28.77	25.02
n. p. 53 . .	23 0.294	+ .740	.919	11 21 25.115	281 11 41.27	− 32.93	51.14	+ 3 35 17.20	. . .
υ Leonis	33 8.194	+ .762	.931	11 31 33.025	277 21 59.36	− 37.92	51.14	− 0 14 29.70	26.02
55 . .	48 30.318	+ .460	.949	11 46 54.829	316 4 30.86	+ 0.98	51.14	+38 28 40.20	. . .
56 . .	57 3.565	+ .713	.959	11 55 28.319	284 48 28.81	− 28.60	51.14	+ 7 12 9.07	. . .
4 H. Draconis. .	12 9 0.21	− 1.10	.972	12 7 23.14	355 47 28.46	+ 42.60	51.14	+78 12 19.92	25.62
57 . .	17 10.56	−12.36	.982	12 15 22.22	5 52 7.13	+ 60.63	51.14	+88 17 16.62	. . .
59 . .	32 56.787	+ .791	−96.000	12 31 21.578	272 21 31.77	− 45.26	51.14	− 5 15 4.63	. . .
γ Virginis m. .	37 54.423	+ .763	.006	12 36 19.180	276 44 11.61	− 38.77	51.14	− 0 52 18.30	25.63
s. f. 61 . .	50 17.27	− 2.97	.020	12 48 38.28	1 34 17.87	+ 52.12	51.14	+83 59 18.85	. . .
62 . .	13 14 28.541	+ .874	.049	13 12 53.366	259 53 28.63	− 70.37	51.14	−17 43 32.88	. . .
α Urs. Min. S. P.	20 3.63	+18.79	.055	1 18 46.37	8 50 4.13	+ 67.45	51.14	+88 44 39.56	25.25
63 . .	34 23.184	+ .466	.072	13 32 47.578	314 25 41.10	− 0.44	51.14	+36 49 49.52	. . .
τ Virginis . . .	57 52.309	+ .739	.099	13 56 16.949	279 39 37.66	− 34.85	51.14	+ 2 3 11.67	24.66
4 Urs. Min. . .	14 11 1.18	− 1.09	.115	14 9 23.98	355 37 40.56	+ 42.32	51.14	+78 2 31.74	25.03
36 H.Cassiop.S.P.	29 26.92	+ 2.02	.137	2 27 52.80	25 12 9.50	+136.02	51.14	+72 21 25.62	24.75
μ Virginis . . .	39 5.566	+ .784	.148	14 37 30.202	272 24 30.15	− 45.10	51.14	− 5 12 6.09	25.46
P. 221	52 50.457	+ .647	−96.164	14 51 14.940	292 28 22.55	− 20.34	51.14	+14 52 11.07	26.04

Clouds at 12^h.

c −^{s}.003	c' −^{s}.020	ΔT −1^m 36^s.004	Nadir 134° 56′ 16″.72	t 60.2
b + .393 at 12^h.7	Rate −^{s}.005	at 12^h 36^m	Equator 277 35 51 .14	B 25.98
a + .768		ρ −.070		T 61

APRIL 16, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
9 H. Draconis. .	10 27 58.51	− .69	−106.361	10 26 11.46	353 50 55.83	+ 41.27	52.17	+76 15 44.93	24.92
1 Leonis	45 28.565	+ .584	.380	10 43 42.769	288 42 33.25	− 25.19	52.17	+11 6 15.89	25.30
χ Leonis	11 1 20.479	+ .601	.397	10 59 34.683	285 30 46.67	− 28.83	52.17	+ 7 54 25.67	25.02
π Cephei S. P. .	6 10.59	+ 1.92	.403	23 4 26.11	22 45 8.51	+124.55	52.17	+74 48 39.11	24.77
σ Leonis	17 27.809	+ .607	.415	11 15 42.001	284 12 51.53	− 30.37	52.17	+ 6 36 28.99	24.61
53 . .	23 10.880	+ .622	.421	11 21 25.081	281 11 43.71	− 34.13	52.17	+ 3 35 17.41	. . .
υ Leonis	33 18.737	+ .643	.432	11 31 32.948	277 22 1.91	− 39.28	52.17	− 0 14 29.54	25.45
55 . .	48 40.847	+ .390	.450	11 46 54.787	316 4 31.41	+ 1.01	52.17	+38 28 40.25	. . .
56 . .	57 14.143	+ .601	.459	11 55 28.285	284 48 30.63	− 29.63	52.17	+ 7 12 8.83	. . .
4 H. Draconis. .	12 9 10.25	− .94	.472	12 7 22.84	355 47 29.31	+ 44.11	52.17	+78 12 21.21	25.80
57 . .	17 17.46	−10.77	.481	12 15 20.21	5 52 7.64	+ 62.77	52.17	+88 17 18.24	. . .
59 . .	33 7.387	+ .666	.498	12 31 21.555	272 21 33.67	− 46.84	52.17	− 5 15 5.34	. . .
γ Virginis m. .	38 5.030	+ .644	.504	12 36 19.170	276 44 13.72	− 40.10	52.17	− 0 52 18.55	25.40
61 . .	50 27.01	− 2.58	.518	12 48 37.91	1 34 17.48	+ 53.89	52.17	+83 59 19.20	. . .
62 . .	13 14 39.227	+ .733	.544	13 12 53.416	259 53 30.68	− 72.73	52.17	−17 43 34.22	. . .
α Urs. Min. S. P.	20 16.90	+16.32	.550	1 18 46.67	——			+88 44 ——	. . .
63 . .	34 33.877	+ .394	.566	13 32 47.705	314 25 43.24	− 0.45	52.17	+36 49 50.62	. . .
τ Virginis . . .	58 3.037	+ .623	.592	13 56 17.068	279 39 39.51	− 36.02	52.17	+ 2 3 11.32	24.74
4 Urs. Min. . .	14 11 11.77	− .95	.606	14 9 24.21	355 37 41.04	+ 43.78	52.17	+78 2 32.65	25.75
36 H.Cassiop.S.P.	29 37.82	+ 1.75	.627	2 27 52.94	25 12 7.44	+140.87	52.17	+72 21 23.86	24.31
μ Virginis . . .	39 16.309	+ .661	.637	14 37 30.333	272 24 32.58	− 46.72	52.17	− 5 12 6.31	25.10
P. 221	53 1.157	+ .547	−106.652	14 51 15.052	292 28 24.59	− 21.09	52.17	+14 52 11.33	25.94

c −^{s}.016	c' −^{s}.033	ΔT −1^m 46^s.502	Nadir 134° 56′ 17″.37	t 40.9
b + .345 at 12^h.8	Rate −^{s}.004	at 12^h 36^m	Equator 277 35 52 .17	B 25.84
a + .652		ρ −.066		T 40

APRIL 17, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
9 H. Draconis	10 28 0.31	− .96	− 107.871	10 26 11.48	353 50 57.43	+ 40.37	52.01	+76 15 45.79	24.74
1 Leonis	45 29.993	+ .670	.894	10 43 42.769	288 42 32.69	− 24.65	52.01	+11 6 16.03	25.71
χ Leonis	11 1 21.836	+ .693	.916	10 59 34.613	285 30 45.94	− 28.21	52.01	+ 7 54 25.72	25.53
π Cephei S. P.	6 12.03	+ 2.36	.922	23 4 26.47	22 45 11.56	+121.86	52.01	+74 48 38.59	24.92
σ Leonis	17 29.201	+ .702	.938	11 15 41.965	284 12 50.58	− 29.72	52.01	+ 6 36 28.85	25.30
53	23 12.344	+ .723	.946	11 21 25.121	281 11 43.19	− 33.40	52.01	+ 3 35 17.78	. .
υ Leonis	33 20.230	+ .749	.958	11 31 33.021	277 22 1.22	− 38.44	52.01	− 0 14 29.23	25.66
55	48 42.375	+ .425	.979	11 45 54.821	316 4 31.97	+ 0.99	52.01	+38 28 40.95	. . .
4 H. Draconis	12 9 11.93	− 1.26	− 108.006	12 7 22.66	355 47 31.02	+ 43.18	52.01	+78 12 22.19	25.58
57	17 22.14	− 13.59	.017	12 15 20.53	5 52 9.31	+ 61.44	52.01	+88 17 18.74	. . .
59	33 8.851	+ .783	.038	12 31 21.596	272 21 33.18	− 45.85	52.01	− 5 15 4.68	. . .
γ Virginis III.	38 6.444	+ .754	.045	12 36 19.153	276 44 13.28	− 39.28	52.01	− 0 52 18.01	25.36
61	50 29.21	− 3.29	.061	12 48 37.86	1 34 19.65	+ 52.82	52.01	+83 59 20.46	. . .
62	13 14 40.563	+ .871	.094	13 12 53.340	259 53 30.02	− 71.32	52.01	− 17 43 33.31	. . .
α Urs. Min. S. P.	20 14.37	+ 20.32	.101	1 18 46.59	8 50 7.07	+ 68.37	52.01	+88 44 36.57	24.63
63	34 35.327	+ .445	.120	13 32 47.652	314 25 43.83	− 0.44	52.01	+36 49 51.38	. . .
τ Virginis	58 4.494	+ .734	.152	13 56 17.076	279 39 38.82	− 35.35	52.01	+ 2 3 11.46	25.15
4 Urs. Min.	14 11 13.60	− 1.22	.169	14 9 24.21	355 37 42.32	+ 42.97	52.01	+78 2 33.28	25.92
36 H.Cassiop.S.P.	29 38.82	+ 2.13	.194	2 27 52.76	25 12 9.81	+138.28	52.01	+72 21 23.92	25.13
μ Virginis	39 17.723	+ .783	.206	14 37 30.300	272 24 31.31	− 45.88	52.01	− 5 12 6.58	25.86
P. 221	53 2.664	+ .643	− 108.225	14 51 15.082	292 28 23.85	− 20.71	52.01	+14 52 11.13	26.76

c −ˢ.019 c' −ˢ.036 ΔT −1ᵐ 48ˢ.042 Nadir 134° 56′ 17″.68 t 53.2
b + .385 at 12ʰ 36ᵐ Equator 277 35 52 .01 B 25.99
a + .787 ρ −.080 T 52

APRIL 18, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R.A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
9 H. Draconis	10 28 1.92	− 1.10	− 109.440	10 26 11.38	353 50 56.65	+ 39.87	51.68	+76 15 44.84	25.21
1 Leonis	45 31.522	+ .697	.462	10 43 42.757	288 42 32.12	− 24.34	51.68	+11 6 16.10	25.04
χ Leonis	11 1 23.386	+ .722	.482	10 59 34.626	285 30 44.68	− 27.83	51.68	+ 7 54 25.17	25.47
π Cephei S. P.	6 13.20	+ 2.54	.488	23 4 26.25	22 45 13.05	+120.18	51.68	+74 48 38.45	24.31
σ Leonis	17 30.751	+ .730	.502	11 15 41.979	284 12 49.64	− 29.31	51.68	+ 6 36 28.65	24.89
53	23 13.851	+ .753	.509	11 21 25.095	281 11 41.85	− 32.92	51.68	+ 3 35 17.25	. . .
υ Leonis	33 21.701	+ .780	.521	11 31 32.960	277 22 0.45	− 37.89	51.68	− 0 14 29.12	24.91
55	48 43.925	+ .428	.540	11 46 54.813	316 4 31.16	+ 0.98	51.68	+38 28 40.46	. . .
56	57 17.165	+ .722	.552	11 55 28.335	284 48 29.42	− 28.57	51.68	+ 7 12 9.17	. . .
4 H. Draconis	12 9 13.77	− 1.37	.566	12 7 22.83	355 47 31.24	+ 42.55	51.68	+78 12 22.11	25.27
57	17 23.86	− 14.59	.577	12 15 19.69	——			+88 17 ——	. . .
59	33 10.301	+ .810	.596	12 31 21.515	272 21 31.86	− 45.21	51.68	− 5 15 4.99	. . .
γ Virginis III.	38 7.966	+ .778	.603	12 36 19.141	276 44 12.38	− 38.73	51.68	− 0 52 18.03	24.76
61	50 30.97	− 3.53	.620	12 48 37.82	1 34 19.52	+ 52.09	51.68	+83 59 19.93	. . .
62	13 14 42.113	+ .898	.648	13 12 53.363	259 53 27.75	− 70.34	51.68	− 17 43 34.27	. . .
α Urs. Min. S. P.	20 15.67	+ 21.39	.655	1 18 47.51	——			+88 44 ——	. . .
63	34 36.849	+ .448	.673	13 32 47.624	314 25 43.30	− 0.44	51.68	+36 49 51.18	. . .
τ Virginis	58 6.024	+ .749	.703	13 56 17.070	279 39 37.99	− 34.87	51.68	+ 2 3 11.44	24.55
4 Urs. Min.	14 11 15.25	− 1.29	.719	14 9 24.24	355 37 43.04	+ 42.39	51.68	+78 2 33.75	25.11
36 H.Cassiop.S.P.	29 40.37	+ 2.19	.742	2 27 52.82	25 12 11.68	+136.37	51.68	+72 21 23.63	24.47
μ Virginis	39 19.309	+ .796	.754	14 37 30.351	272 24 30.76	− 45.25	51.68	− 5 12 6.17	24.81
P. 221	53 4.192	+ .651	− 109.771	14 51 15.072	292 28 23.97	− 20.42	51.68	+14 52 11.87	25.46

c −ˢ.022 c' −ˢ.039 ΔT −1ᵐ 49ˢ.601 Nadir 134° 56′ 16″.67 t 60.1
b + .391 at 12ʰ 36ᵐ Equator 277 35 51 .68 B 25.98
a + .822 at 12ʰ.6 Rate − ˢ.01 ρ −.075 T 58

APRIL 23, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
π Cephei S. P.	11 6 22.06	+ 1.77	− 117.012	23 4 ——	22 45 8.30	+124.70	51.34	+74 48 38.34	25.83
σ Leonis	17 38.201	+ .689	.028	11 15 41.862	284 12 50.57	− 30.41	51.34	+ 6 36 28.82	25.79
υ Leonis	33 29.273	+ .725	.048	11 31 32.950	277 22 1.59	− 39.36	51.34	− 0 14 29.11	25.82
55	48 51.332	+ .503	.069	11 46 54.766	316 4 32.58	+ 1.02	51.34	+38 28 42.26	. . .
56	57 24.615	+ .697	.080	11 55 28.232	284 48 31.41	− 29.69	51.34	+ 7 12 10.38	. . .
4 H. Draconis	12 9 20.37	− .70	.096	12 7 ——	355 47 30.82	+ 44.20	51.34	+78 12 23.68	25.83
57	17 25.60	− 9.58	.107	12 15 18.91	5 52 8.60	+ 62.89	51.34	+88 17 20.15	. . .
γ Virginis m.	38 15.566	+ .749	.135	12 36 19.180	276 44 13.29	− 40.19	51.34	− 0 52 18.24	25.96
δ Virginis	52 14.173	+ .727	.154	12 50 17.746	281 34 37.01	− 33.64	51.34	+ 3 58 12.03	25.82
α Urs. Min. S. P.	13 20 30.63	+16.00	− 117.191	1 18 ——	8 50 5.94	+ 69.97	51.34	+88 44 35.43	25.49

c −ˢ.003 c' −ˢ.020 ΔT −1ᵐ 57ˢ.091 Nadir 134° 56′ 17″.19 ℓ 40.9
b + .428 at 12ʰ 5ᵐ Equator 277 35 51 .34 B 25.91
a + .687 at 12ʰ.2 Rate +ˢ.03 ρ − .080 T 43

APRIL 30, 1894. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
$\varkappa$ Draconis	12 29 9.36	− .57	− 5.809	12 29 2.98	347 57 41.46	+ 32.49	50.09	+70 22 23.86	25.12
δ Virginis	50 22.738	+ .818	.830	12 50 17.726	281 34 35.47	− 32.93	50.09	+ 3 58 12.45	25.44
ε Virginis	57 1.123	+ .750	.837	12 56 56.036	289 7 46.72	− 24.20	50.09	+11 31 32.43	25.78
9 Virginis	13 4 34.509	+ .888	.845	13 4 29.552	272 37 58.17	− 45.51	50.09	− 4 58 37.43	25.69
α Urs. Min. S. P.	13 32.96	+24.02	.859	1 18 51.12	8 50 8.64	+ 68.51	50.09	+88 44 33.04	24.68
ζ Virginis	29 24.481	+ .841	.869	13 29 19.453	277 32 59.80	− 38.25	50.09	− 0 3 28.54	26.02
64	36 9.752	+ .906	.876	13 36 4.782	269 26 20.17	− 50.92	50.09	− 8 10 20.84	. . .
65	14 0 26.945	+ 1.057	.900	14 0 22.102	251 26 55.70	−100.01	50.09	−26 10 34.38	. . .
67	13 29.408	+ .934	.913	14 13 24.429	264 43 34.83	− 60.09	50.09	−12 53 15.35	. . .
68	21 39.062	+ .657	.922	14 21 33.797	297 18 4.06	− 15.94	50.09	+19 41 58.03	. . .
69	27 59.28	− 1.15	.928	14 27 52.20	353 45 3.22	+ 40.29	50.09	+76 9 53.42	. . .
s. f. 70	40 29.167	+ .580	.940	14 40 23.807	305 7 0.80	− 8.68	50.09	+27 31 2.03	. . .
f. 72	51 23.634	+ .991	.951	14 51 18.674	256 40 40.96	− 80.81	50.09	−20 56 29.94	. . .
48 H. Ceph. S. P.	15 6 49.62	+ 3.01	.967	3 6 46.66	——			+77 20 ——	. . .
β Librae	11 25.266	+ .884	.971	15 11 20.179	268 36 56.82	− 52.47	50.09	− 8 59 45.74	25.27
74	18 57.365	+ .540	.979	15 18 51.926	308 15 53.86	− 5.87	50.09	+30 39 57.90	. . .
α Serpentis	39 10.109	+ .753	.999	15 39 4.863	284 21 36.35	− 29.67	50.09	+ 6 45 16.59	25.27
ε Serpentis	45 39.188	+ .766	− 6.006	15 45 33.948	282 23 54.00	− 32.03	50.09	+ 4 47 31.88	25.57
Gr. 750 S. P.	16 3 7.10	+ 6.55	.023	4 3 7.63	12 17 46.97	+ 78.25	50.09	+85 16 44.87	24.73
19 Urs. Min.	14 3.56	− 1.08	.034	16 13 56.45	353 43 31.70	+ 40.38	50.09	+76 8 21.99	24.34

c −ˢ.016 c' −ˢ.033 ΔT −5ˢ.907 Nadir 134° 56′ 15″.67 ℓ 49.9
b + .404 at 14ʰ.2 Rate −ˢ.005 at 14ʰ 8ᵐ Equator 277 35 50 .09 B 25.87
a + .885 at 14 .6 Rate − .02 ρ − .060 T 51

MAY 2, 1894. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
κ Draconis	12 29 12.45	− .45	−8.929	12 29 3.07	347 57 42.22	+ 32.54	50.73	+70 22 24.03	25.63
δ Virginis	50 26.002	+ .682	.957	12 50 17.727	281 34 36.19	− 32.97	50.76	+ 3 58 12.46	25.72
ε Virginis	57 4.315	+ .629	.966	12 56 55.978	289 7 47.86	− 24.23	50.77	+11 31 32.86	25.75
9 Virginis	13 4 37.752	+ .742	.976	13 4 29.518	272 37 59.21	− 45.57	50.78	− 5 2 37.14	25.64
α Urs. Min. S. P.	18 41.22	+19.90	.995	1 18 52.12	8 50 8.85	+ 68.59	50.81	+88 44 33.37	25.74
ζ Virginis	29 27.774	+ .710	−9.009	13 29 19.475	277 33 0.72	− 38.30	50.83	− 0 3 28.41	26.19
64	36 13.088	+ .765	.018	13 36 4.835	269 26 21.02	− 50.97	50.84	− 8 10 20.79	. . .
65	14 0 30.210	+ .896	.051	14 0 22.055	251 26 56.16	−100.01	50.88	−26 10 34.73	. . .
4 Urs. Min.	9 34.48	− 1.24	.063	14 9 24.18	——			+78 2 ——	. . .
67	13 32.637	+ .797	.068	14 13 24.366	264 43 35.52	− 60.07	50.90	−12 53 15.45	. . .
68	21 42.191	+ .568	.079	14 21 33.680	297 18 5.53	− 15.93	50.91	+19 41 58.69	. . .
69	28 2.41	− .97	.087	14 27 52.35	353 45 4.79	+ 40.27	50.93	+76 9 54.13	. . .
70	40 32.374	+ .503	.105	14 40 23.772	305 7 2.12	− 8.67	50.95	+27 31 2.50	. . .
72	51 26.941	+ .856	.118	14 51 18.679	256 40 41.46	− 80.73	50.96	−20 56 30.23	. . .
48 H. Ceph. S. P.	15 6 53.14	+ 2.62	.139	3 6 46.62	——			+77 20 ——	. . .
β Librae	11 28.624	+ .771	.145	15 11 20.250	268 36 57.35	− 52.40	51.00	− 8 59 46.05	25.80
74	19 0.529	+ .474	.155	15 18 51.848	308 15 55.13	− 5.86	51.01	+30 39 58.26	. . .
α Serpentis	39 13.388	+ .664	.182	15 39 4.870	284 21 37.42	− 29.60	51.04	+ 6 45 16.78	25.50
ε Serpentis	45 42.481	+ .676	.191	15 45 33.966	282 23 55.41	− 31.95	51.05	+ 4 47 32.41	25.42
Gr. 750 S. P.	16 3 10.52	+ 5.84	.214	4 3 7.15	12 17 47.66	+ 78.00	51.08	+85 16 45.32	25.94
19 Urs. Min.	14 6.62	− .97	−9.229	16 13 56.42	353 43 32.73	+ 40.23	51.10	+76 8 21.86	25.28

c −ˢ.016 c' −ˢ.033 ΔT −9ˢ.061 Nadir 134° 56′ 16″.61 at 14ʰ.1 t 49.2
b + .355 at 14ʰ 8ᵐ Equator 277 35 50 .89 at 14 .1 B 25.81
a + .758 ρ −.080 Rate +0″.10 hourly T 49

MAY 7, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
κ Draconis	12 29 19.58	− .28	−16.518	12 29 2.78	347 57 44.22	+31.70	50.83	+70 22 25.09	25.47
δ Virginis	——			12 50 ——	281 34 35.61	−32.11	50.83	+ 3 58 12.67	25.60
ε Virginis	——			12 56 ——	289 7 47.50	−23.59	50.83	+11 31 33.08	25.81
9 Virginis	13 4 45.316	+ .772	.560	13 4 29.528	272 37 58.24	−44.36	50.83	− 4 58 36.95	25.34
α Urs. Min. S. P.	18 54.37	+17.69	.576	1 18 55.48	8 50 12.47	+66.75	50.83	+88 44 31.61	25.02
ζ Virginis	29 35.309	+ .743	.589	13 29 19.463	277 32 59.89	−37.26	50.83	− 0 3 28.20	26.01
64	36 20.645	+ .792	.596	13 36 4.841	269 26 19.49	−49.58	50.83	− 8 10 20.92	. . .
τ Virginis	56 33.009	+ .729	.620	13 56 17.118	——			+ 2 3 ——	. . .
65	14 0 37.865	+ .910	.625	14 0 22.150	251 26 53.22	−97.32	50.83	−26 10 34.93	. . .
4 Urs. Min.	9 41.80	− .99	.636	14 9 24.17	——			+78 2 ——	. . .
67	13 40.223	+ .821	.640	14 13 24.404	264 43 34.26	−58.47	50.83	−12 53 15.04	. . .
68	21 49.838	+ .616	.650	14 21 33.804	297 18 5.97	−15.51	50.83	+19 41 59.63	. . .
69	28 9.52	− .74	.657	14 27 52.12	353 45 7.39	+39.21	50.83	+76 9 55.77	. . .
70	40 39.945	+ .558	.672	14 39 23.831	305 7 3.00	− 8.44	50.83	+27 31 3.73	. . .
72	51 34.532	+ .873	.684	14 51 18.721	256 40 38.74	−78.61	50.83	−20 56 30.70	. . .
48 H. Ceph. S. P.	15 7 0.84	+ 2.43	.702	3 6 46.57	——			+77 20 ——	. . .
β Librae	11 36.209	+ .798	.708	15 11 20.299	268 36 55.89	−51.02	50.83	− 8 59 45.96	25.69
74	19 8.068	+ .532	.716	15 18 51.884	308 15 55.92	− 5.71	50.83	+30 39 59.38	. . .
α Serpentis	39 20.995	+ .701	.740	15 39 4.956	284 21 37.29	−28.81	50.83	+ 6 45 17.65	25.12
ε Serpentis	45 50.073	+ .713	.748	15 45 34.038	282 23 55.20	−31.10	50.83	+ 4 47 33.27	24.94
Gr. 750 S. P.	16 3 19.04	+ 5.27	.768	4 3 7.54	12 17 51.38	+75.93	50.83	+85 16 43.52	25.47
19 Urs. Min.	14 14.19	− .74	−16.780	16 13 56.67	353 43 35.92	+39.18	50.83	+76 8 24.27	24.38

Short, sharp earthquake shock, at 14ʰ.8; preceded by slight oscillation, at 13ʰ.8. The instrumental constants have not been affected. Chronograph failed during last of 12ʰ.

c −ˢ.007 c' −ˢ.024 ΔT −16ˢ.660 Nadir 134° 56′ 16″.33 t 62.9
b + .398 at 14ʰ 31ᵐ Equator 277 35 50 .83 B 25.85
a + .741 ρ −.070 T 63

MAY 9, 1894. **CIR. E, WT. 3, OBSR. T.**

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
κ Draconis	12 29 22.18	− .20	−19.227	12 29 2.75	347 57 44.54	+31.68	50.39	+70 22 25.83	25.47
δ Virginis	50 36.359	+ .628	.244	12 50 17.743	281 34 35.37	−32.09	50.50	+ 3 58 12.78	25.92
ε Virginis	57 14.630	+ .590	.250	12 56 55.970	289 7 47.56	−23.58	50.53	+11 31 33.45	25.93
9 Virginis	13 4 48.174	+ .673	.256	13 4 29.591	272 37 57.66	−44.35	50.57	− 4 58 37.26	25.99
α Urs. Min. S. P.	19 0.84	+14.64	.268	1 18 56.21	8 50 14.15	+66.75	50.64	+88 44 29.74	23.92
ζ Virginis	29 38.095	+ .648	.277	13 29 19.466	277 33 0.16	−37.26	50.70	− 0 3 27.80	26.01
65	14 0 40.696	+ .786	.303	14 0 22.179	251 26 53.55	−97.39	50.85	−26 10 34.69	. . .
4 Urs. Min.	9 44.31	− .78	.310	14 9 24.22	——			+78 2 ——	. . .
67	13 43.137	+ .712	.314	14 13 24.535	264 43 33.93	−58.52	50.91	−12 53 15.50	. . .
68	21 52.555	+ .544	.321	14 21 33.778	297 18 7.13	−15.52	50.95	+19 42 0.66	. . .
69	28 12.18	− .58	.326	14 27 52.27	353 45 8.19	+39.25	50.98	+76 9 56.46	. . .
70	40 42.652	+ .496	.336	14 40 23.812	305 7 3.49	− 8.45	51.05	+27 31 3.99	. . .
72	51 37.362	+ .757	.345	14 51 18.774	256 40 39.32	−78.72	51.10	−20 56 30.50	. . .
48 H. Ceph. S. P.	15 7 4.20	+ 2.04	.358	3 6 46.88	——			+77 20 ——	. . .
β Librae	11 38.945	+ .694	.362	15 11 20.277	268 36 56.38	−51.10	51.20	− 8 59 45.92	25.99
74	19 10.872	+ .474	.368	15 18 51.978	308 15 56.91	− 5.71	51.24	+30 39 59.96	. . .
α Serpentis	39 23.774	+ .615	.385	15 39 5.004	284 21 37.86	−28.86	51.34	+ 6 45 17.66	25.65
ε Serpentis	45 52.866	+ .624	.391	15 45 34.099	282 23 55.68	−31.16	51.37	+ 4 47 33.15	25.58
Gr. 750 S. P.	16 3 22.76	+ 4.38	.405	4 3 7.74	12 17 52.62	+76.09	51.46	+85 16 42.75	25.60
19 Urs. Min.	14 16.64	− .57	−19.414	16 13 56.66	353 43 36.55	+39.26	51.51	+76 8 24.30	25.30

c −ˢ.003 c' −ˢ.020 ΔT −19ˢ.310 Nadir 134° 56′ 16″.76 at 14ʰ.1 t 59.7
b + .357 at 14ʰ 9ᵐ Equator 277 35 50 .89 at 14 .1 B 25.70
a + .633 ρ −.050 Rate +0″.30 hourly T 60

MAY 22, 1894. **CIR. E, WT. 2, OBSR. T.**

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
δ Virginis	12 50 55.066	+ .811	−38.179	12 50 17.698	281 34 36.66	− 32.68	50.47	+ 3 58 13.51	26.20
ε Virginis	57 33.393	+ .753	.187	12 56 55.959	289 7 49.86	− 24.01	50.47	+11 31 35.38	25.41
9 Virginis	13 5 6.851	+ .876	.196	13 4 29.531	272 37 59.08	− 45.15	50.47	− 4 58 36.54	25.78
α Urs. Min. S. P.	19 22.10	+21.24	.213	1 19 5.13	8 50 13.78	+ 67.95	50.47	+88 44 28.74	25.76
ζ Virginis	29 56.873	+ .796	.227	13 29 19.442	277 33 1.03	− 37.93	50.47	− 0 3 27.37	26.47
64	36 42.229	+ .899	.236	13 36 4.892	269 26 20.78	− 50.48	50.47	− 8 10 20.17	. . .
66	14 1 5.900	+ 1.133	.266	14 0 28.767	241 47 18.97	−162.00	50.47	−35 51 13.50	. . .
4 Urs. Min.	10 3.02	− 1.26	.278	14 9 23.48	355 37 51.51	+ 42.69	50.47	+78 2 43.73	26.05
36 H. Cassiop. S. P.	28 29.72	+ 2.27	.300	2 27 53.69	25 12 17.53	+137.35	50.47	+72 21 15.59	25.65
μ Virginis	38 7.980	+ .877	.313	14 37 30.544	272 24 31.38	− 45.56	50.47	− 5 12 4.65	25.34
71	51 40.593	+ .920	.330	14 51 3.183	266 37 36.09	− 55.76	50.47	−10 59 10.14	. . .
73	15 12 46.82	− 9.99	.356	15 11 58.47	5 13 11.01	+ 59.78	50.47	+87 38 20.32	. . .
75	22 56.406	+ .961	.369	15 22 18.998	261 15 53.72	− 67.52	50.47	−16 21 4.27	. . .
76	36 30.133	+ .984	.386	15 35 52.731	258 16 44.19	− 75.43	50.47	−19 20 21.71	. . .
77	47 50.733	+ .987	.400	15 47 13.320	257 45 52.45	− 76.93	50.47	−19 51 14.95	. . .
78	55 2.534	+ .960	.409	15 54 25.085	261 23 27.22	− 67.23	50.47	−16 13 30.48	. . .
79	16 6 29.969	+ .982	.423	16 5 52.528	258 25 45.20	− 75.03	50.47	−19 11 20.30	. . .
N. fol. 81	11 22.922	+ .550	.429	16 10 45.043	311 43 18.98	− 2.80	50.47	+34 7 25.71	. . .
ζ Ophiuchi	31 59.258	+ .915	.455	16 31 21.718	267 15 23.39	− 54.61	50.47	−10 21 21.69	25.93
ε Urs. Min.	57 39.56	− 2.40	.487	16 56 58.67	359 47 27.71	+ 49.50	50.47	+82 12 26.74	25.65
19 H. Cam. S. P.	17 5 36.19	+ 3.20	.497	5 5 0.89	——			+79 6 ——	. . .
α Herculis	10 28.849	+ .730	.503	17 9 51.076	292 6 37.97	− 20.97	50.47	+14 30 26.53	25.15
87	17 21.881	+ .566	.511	17 16 43.936	310 11 54.06	− 4.13	50.47	+32 35 59.46	. . .
α Ophiuchi	30 40.799	+ .746	.528	17 30 3.017	290 14 12.92	− 22.92	50.47	+12 37 59.53	26.45
β Ophiuchi	38 54.123	+ .806	.539	17 38 16.390	282 12 51.72	− 32.01	50.47	+ 4 36 29.24	25.85
ψ Draco. Aus.	44 32.27	− .54	.546	17 43 53.18	349 47 0.78	+ 34.69	50.47	+72 11 45.00	26.29
ν Ophiuchi	53 51.400	+ .912	−38.557	17 53 13.755	267 50 55.56	− 53.55	50.47	− 9 45 48.46	27.10

c −ˢ.013 c' −ˢ.030 ΔT −38ˢ.369 Nadir 134° 56′ 16″.44 t 50.9
b + .438 at 15ʰ 23ᵐ Equator 277 35 50 .47 B 25.73
a + .859 ρ −.075 T 53

MAY 23, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
δ Virginis	12 50 56.630	+ .816	− 39.786	12 50 17.660	281 34 36.69	− 32.75	49.93	+ 3 58 14.01	25.37
ε Virginis	57 35.000	+ .756	.793	12 56 55.963	289 7 49.63	− 24.07	49.93	+ 11 31 35.63	24.85
9 Virginis	13 5 8.437	+ .886	.802	13 4 29.521	272 37 58.48	− 45.27	49.93	− 4 58 36.72	25.59
α Urs. Min. S. P.	19 22.96	+ 22.13	.817	1 19 5.27	8 50 13.73	+ 68.14	49.93	+ 88 44 28.06	24.84
ζ Virginis	29 58.430	+ .848	.829	13 29 19.449	277 33 0.77	− 38.04	49.93	− 0 3 27.20	25.95
66	14 1 7.514	+ 1.164	.863	14 0 28.815	241 47 17.41	− 162.53	49.93	− 35 51 15.05	. . .
4 Urs. Min.	10 4.52	− 1.34	.873	14 9 23.31	355 37 51.41	+ 42.83	49.93	+ 78 2 44.31	25.31
36 H.Cassiop.S.P.	28 31.44	+ 2.35	.893	2 27 53.90	25 12 16.81	+ 137.80	49.93	+ 72 21 15.32	25.17
μ Virginis	38 9.644	+ .887	.904	14 37 30.627	272 24 30.62	− 45.71	49.93	− 5 12 5.02	25.35
71	51 42.150	+ .934	.918	14 51 3.166	266 37 35.73	− 55.94	49.93	− 10 59 10.14	. . .
73	15 12 47.90	− 10.47	.942	15 11 57.49	5 13 9.90	+ 59.97	49.93	+ 87 38 19.94	. . .
75	22 58.006	+ .976	.953	15 22 19.029	261 15 53.38	− 67.74	49.93	− 16 21 4.29	. . .
76	36 31.705	+ 1.003	.968	15 35 52.740	258 16 43.44	− 75.67	49.93	− 19 20 22.14	. . .
77	47 52.240	+ 1.006	.981	15 47 13.265	257 45 51.71	− 77.17	49.93	− 19 51 15.39	. . .
78	55 4.063	+ .975	.989	15 54 25.049	261 23 26.68	− 67.44	49.93	− 16 13 30.69	. . .
79	16 6 31.519	+ 1.001	− 40.001	16 5 52.519	258 25 44.07	− 75.26	49.93	− 19 11 21.12	. .
prec. 81	11 24.294	+ .541	.007	16 10 44.828	311 43 13.67	− 2.81	49.93	+ 34 7 20.93	. . .
ζ Ophiuchi	32 0.786	+ .928	.029	16 31 21.685	267 15 22.39	− 54.76	49.93	− 10 21 22.30	26.18
ε Urs. Min.	57 41.07	− 2.55	.058	16 56 58.46	359 47 27.75	+ 49.63	49.93	+ 82 12 27.45	24.87
19 H. Cam. S. P.	17 5 37.53	+ 3.30	.066	5 5 0.76	——			+ 79 6 ——	. . .
α Herculis	10 30.471	+ .731	.071	17 9 51.131	292 6 37.28	− 21.02	49.93	+ 14 30 26.33	25.13
87	17 23.360	+ .558	.079	17 16 43.839	310 11 53.60	− 4.14	49.93	+ 32 35 59.53	. . .
α Ophiuchi	30 42.399	+ .748	.094	17 30 3.053	290 14 13.44	− 22.96	49.93	+ 12 38 0.55	25.21
β Ophiuchi	38 55.701	+ .811	.103	17 38 16.409	282 12 51.28	− 32.07	49.93	+ 4 36 29.28	25.55
ψ Draco. Aus.	44 33.74	− .59	.109	17 43 53.04	349 47 0.81	+ 34.75	49.93	+ 72 11 45.63	25.58
ν Ophiuchi	53 52.929	+ .924	− 40.119	17 53 13.734	267 50 55.28	− 53.64	49.93	− 9 45 48.29	26.60

c −″.006 c' −″.023 ΔT − 39ˢ.953 Nadir 134° 56′ 15″.51 t 50.4
b + .422 at 15ʰ 23ᵐ Equator 277 35 49 .93 B 25.77
a + .881 ρ − .066 T 52

JUNE 8, 1894. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
9 Virginis	13 5 33.087	+ .933	− 64.574	13 4 29.446	272 37 59.00	− 45.64	49.68	− 4 58 36.32	25.80
α Urs. Min. S. P.	20 0.23	+ 23.93	.590	1 19 19.57	8 50 14.48	+ 68.66	49.68	+ 88 44 26.54	25.60
ζ Virginis	30 23.094	+ .893	.601	13 29 19.386	277 33 1.79	− 38.31	49.68	− 0 3 26.20	25.87
τ Virginis	57 20.866	+ .876	.631	13 56 17.111	——			+ 2 3 ——	. . .
66	14 1 32.093	+ 1.223	.636	14 0 28.680	241 47 16.23	− 163.52	49.68	− 35 51 17.03	. . .
4 Urs. Min.	10 28.49	− 1.46	.645	14 9 22.39	355 37 54.24	+ 43.07	49.68	+ 78 2 47.63	25.38
μ Virginis	38 34.410	+ .935	.677	14 37 30.668	272 24 31.74	− 45.96	49.68	− 5 12 3.90	25.01
71	52 6.936	+ .982	.691	14 51 3.227	266 37 36.32	− 56.27	49.68	− 10 59 9.63	. . .
73	15 13 8.84	− 11.34	.714	15 11 52.79	5 13 14.07	+ 60.37	49.68	+ 87 38 24.76	. . .
75	23 22.777	+ 1.029	.725	15 22 19.081	261 15 53.40	− 68.20	49.68	− 16 21 4.48	. . .
76	36 56.562	+ 1.055	.741	15 35 52.876	258 16 43.81	− 76.23	49.68	− 19 20 22.10	. .
77	48 17.105	+ 1.059	.752	15 47 13.412	257 45 51.58	− 77.79	49.68	− 19 51 15.89	. . .
78	55 28.898	+ 1.027	.761	15 54 25.164	261 23 27.26	− 67.98	49.68	− 16 13 30.40	. . .
79	16 6 56.462	+ 1.053	.773	16 5 52.742	258 25 44.34	− 75.89	49.68	− 19 11 21.23	. . .
ζ Ophiuchi	32 25.665	+ .977	.800	16 31 21.842	267 15 23.34	− 55.26	49.68	− 10 21 21.60	26.21
ε Urs. Min.	58 6.04	− 2.77	.830	16 56 58.44	359 47 31.72	+ 50.10	49.68	+ 82 12 32.14	25.22
α Herculis	17 10 55.428	+ .769	.844	17 9 51.353	292 6 40.49	− 21.22	49.68	+ 14 30 29.59	24.94
87	17 48.388	+ .585	.852	17 16 44.121	310 11 58.14	− 4.18	49.68	+ 32 36 4.28	. . .
90	22 21.859	+ .858	.856	17 21 17.861	281 50 8.77	− 32.87	49.68	+ 4 13 46.22	. . .
α Ophiuchi	31 7.349	+ .787	.866	17 30 3.270	290 14 16.04	− 23.20	49.68	+ 12 38 3.16	25.58
β Ophiuchi	39 20.666	+ .854	.875	17 38 16.645	282 12 53.83	− 32.40	49.68	+ 4 36 31.81	25.46
ψ Draco. Aus.	44 58.91	− .66	.882	17 43 53.37	349 47 5.41	+ 35.11	49.68	+ 72 11 50.84	25.62
ν Ophiuchi	54 18.022	+ .973	− 64.892	17 53 14.103	267 50 57.41	− 54.21	49.68	− 9 45 46.48	26.00

Observations somewhat interrupted by clouds. High wind, north.

c −″.019 c' −″.036 ΔT − 64ˢ.750 Nadir 134° 56′ 15″.29 t 49.1
b + .453 at 15ʰ 46ᵐ Equator 277 35 49 .68 B 25.91
a + .936 ρ − .066 T 50

JUNE 19, 1894. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
δ Virginis . . .	12 51 38.651	+ .875	−82.069	12 50 17.467	281 34 37.94	− 32.30	49.94	+ 3 58 15.70	25.67
ε Virginis . . .	58 17.065	+ .810	.076	12 56 55.799	289 7 51.21	− 23.75	49.95	+11 31 37.51	25.46
9 Virginis . . .	13 5 50.459	+ .943	.085	13 4 29.317	272 37 59.77	− 44.69	49.97	− 4 58 34.89	26.05
α Urs. Min. S. P.	20 28.63	+23.01	.102	1 19 29.54	8 50 16.82	+ 67.35	49.99	+88 44 25.82	25.65
ζ Virginis . . .	30 40.473	+ .898	.114	13 29 19.257	277 33 2.40	− 37.63	50.01	− 0 3 25.24	25.81
66 . .	14 1 49.550	+ 1.213	.150	14 0 28.613	241 47 14.67	−160.99	50.06	− 35 51 16.38	. . .
4 Urs. Min. . .	10 44.96	− 1.37	.161	14 9 21.43	355 37 57.11	+ 42.42	50.08	+78 2 49.45	25.46
36 H.Cassiop.S.P.	29 15.38	+ 2.43	.182	2 27 55.63	25 12 21.64	+136.45	50.11	+72 21 12.02	25.78
μ Virginis . . .	38 51.859	+ .924	.193	14 37 30.590	272 24 31.38	− 45.27	50.12	− 5 12 4.01	25.90
71 . .	52 24.450	+ .965	.209	14 51 3.206	266 37 35.89	− 55.41	50.15	−10 59 9.87	. . .
73 . .	15 13 23.06	−10.80	.233	15 11 50.03	5 13 17.28	+ 59.37	50.18	+87 38 26.47	. .
75 . .	23 40.292	+ 1.003	.246	15 22 19.049	261 15 52.53	− 67.02	50.20	−16 21 4.69	. . .
76 . .	37 14.069	+ 1.026	.261	15 35 52.834	258 16 42.24	− 74.86	50.22	−19 20 22.84	. . .
77 . .	48 34.647	+ 1.026	.275	15 47 13.398	257 45 50.65	− 76.33	50.24	−19 51 15.92	. . .
78 . .	55 46.506	+ .995	.283	15 54 25.218	261 23 26.32	− 66.72	50.25	−16 13 30.65	. . .
79 . .	16 7 14.026	+ 1.017	.296	16 5 52.747	258 25 43.53	− 74.46	50.27	−19 11 21.20	. . .
Prec. 81 . .	12 6.744	+ .547	.302	16 10 44.989	311 43 21.42	− 2.77	50.28	+34 7 28.37	. . .
ζ Ophiuchi . . .	32 43.386	+ .937	.326	16 31 21.997	267 15 23.54	− 54.19	50.31	−10 21 20.96	26.29
ε Urs. Min. . .	58 23.11	− 2.62	.356	16 56 58.13	359 47 36.73	+ 49.12	50.35	+82 12 35.50	25.34
19 H. Cam. S. P.	17 6 20.92	+ 3.36	.365	5 5 1.92				+79 6 ——	. . .
α Herculis . . .	11 13.064	+ .728	.371	17 9 51.421	292 6 42.95	− 20.81	50.38	+14 30 31.76	25.04
87 . .	18 6.081	+ .551	.379	17 16 44.253	310 12 1.17	− 4.10	50.39	+32 36 6.68	. . .
90 . .	22 39.459	+ .810	.385	17 21 17.884	281 50 10.91	− 32.22	50.40	+ 4 13 48.29	. . .
α Ophiuchi . . .	31 25.071	+ .740	.395	17 30 3.416	290 14 18.32	− 22.74	50.41	+12 38 5.17	25.84
β Ophiuchi . . .	39 38.387	+ .804	.404	17 38 16.787	282 12 55.50	− 31.75	50.42	+ 4 36 33.33	25.76
ψ Draco. Aus. . .	45 16.57	− .63	.411	17 43 53.53	349 47 10.43	+ 34.41	50.43	+72 11 54.41	25.86
ν Ophiuchi . . .	54 35.736	+ .940	−82.422	17 53 14.254	267 50 58.26	− 53.09	50.45	− 9 45 45.28	25.85

c −ˢ.010 c' −ˢ.027 ΔT −1ᵐ 22ˢ.246 Nadir 134° 56′ 15″.94 at 16ʰ.1 t 56.3
b + .431 at 16ʰ.1 Rate −ˢ.01 at 15ʰ 24ᵐ Equator 277 35 50 .20 at 15 .4 B 25.80
a + .910 at 15 .0 Rate − .01 ρ −.070 Rate +0″.10 hourly T 57

JUNE 20, 1894. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
47 H. Cephei S. P.	14 53 16.44	+ 3.44	−83.814	2 51 56.07	18 34 17.32	+ 98.35	51.03	+78 59 55.36	25.63
β Librae	15 12 43.312	+ .990	.837	15 11 20.465	268 36 58.01	− 51.22	51.03	− 8 59 44.24	25.35
γ Urs. Min. . .	22 22.70	− .57	.849	15 20 58.28	349 47 56.80	+ 34.09	51.03	+72 12 39.86	26.30
α Serpentis . .	40 28.256	+ .856	.870	15 39 5.242	284 21 42.77	− 28.91	51.03	+ 6 45 22.83	25.30
ε Serpentis . .	46 57.384	+ .870	.878	15 45 34.376	282 23 59.86	− 31.21	51.03	+ 4 47 37.62	25.70
80 . .	16 7 30.134	− .256	.901	16 6 5.977	345 40 40.74	+ 29.08	51.03	+68 5 18.79	. . .
82 . .	16 10.283	+ 1.110	.912	16 14 47.481	252 16 52.51	− 94.18	51.03	−25 20 32.70	. . .
83 . .	30 42.703	+ 1.130	.929	16 29 19.904	249 37 36.91	−105.82	51.03	−27 59 59.94	. . .
Gr. 848 S. P. . .	35 52.70	+ 2.75	.935	4 34 31.52	21 49 2.41	+113.85	51.03	+75 44 54.77	25.43
84 . .	44 43.712	+ 1.187	.945	16 43 20.954	243 31 58.13	−143.94	51.03	−34 6 16.84	. . .
κ Ophiuchi . .	54 4.740	+ .815	.956	16 52 41.599	287 8 31.12	− 25.79	51.03	+ 9 32 14.30	25.81
85 . .	59 7.541	+ .590	.962	16 57 44.169	311 19 4.74	− 3.09	51.03	+33 43 10.62	. . .
s. p. 86 . .	17 10 15.655	+ 1.099	.975	17 8 52.779	251 10 28.35	− 98.84	51.03	−26 27 1.52	. . .
88 . .	21 19.734	+ 1.074	.988	17 19 56.820	253 32 29.94	− 89.42	51.03	−24 4 50.51	. . .
α Ophiuchi . .	31 26.654	+ .782	−84.000	17 30 3.436	290 14 19.43	− 22.51	51.03	+12 38 5.89	25.07
β Ophiuchi . .	39 39.948	+ .843	.009	17 38 16.782	282 12 56.01	− 31.44	51.03	+ 4 36 33.54	25.46
δ Urs. Min. . . .	18 8 14.57	− 6.66	.042	18 6 43.87	4 11 30.37	+ 56.73	51.03	+86 36 36.07	24.94
93 . .	18 34.468	+ 1.153	.054	18 17 11.567	243 12 6.96	−146.77	51.03	−34 26 10.84	. . .
23 H. Cam. S. P.	29 26.14	+ 3.31	.067	6 28 5.38	17 53 25.93	+ 95.47	51.03	+79 40 49.63	25.53
96 . .	51 16.29	− .78	.093	18 49 51.42	352 53 34.25	+ 38.18	51.03	+75 18 21.40	. . .
λ Aquilae . . .	19 2 3.363	+ .892	.105	19 0 40.150	272 34 1.22	− 44.64	51.03	− 5 2 34.45	25.85
ω Aquilae . . .	14 16.305	+ .768	.120	19 12 52.953	289 0 24.27	− 23.82	51.03	+11 24 9.42	25.41
δ Aquilae . . .	21 35.084	+ .829	.128	19 20 11.785	280 30 32.32	− 33.57	51.03	+ 2 54 7.72	25.35
λ Urs. Min. . .	31 27.39	−22.92	−84.139	19 29 40.33	6 33 9.44	+ 61.74	51.03	+88 58 20.15	24.50

Occasional clouds.

c −ˢ.003 c' −ˢ.020 ΔT −1ᵐ 23ˢ.990 Nadir 134° 56′ 16″.51 t 60.0
b + .452 at 17ʰ.4 Rate −ˢ.005 at 17ʰ 23ᵐ Equator 277 35 51 .03 B 25.79
a + .880 at 18.0 Rate − .02 ρ −.070 T 60

JUNE 21, 1894. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
47 H. Cephei S. P.	14 53 18.89	+ 2.93	−85.367	2 51 56.45	18 34 18.34	+ 98.84	52.03	+78 59 54.85	24.86
β Librae	15 12 44.983	+ .864	.387	15 11 20.460	268 36 59.07	− 51.47	52.03	− 8 59 44.43	25.22
γ Urs. Min.	22 24.03	− .44	.397	15 20 58.19	349 47 57.46	+ 34.26	52.03	+72 12 39.69	26.31
α Serpentis	40 29.891	+ .756	.416	15 39 5.231	284 21 43.98	− 29.05	52.03	+ 6 45 22.90	24.98
ε Serpentis	46 58.998	+ .768	.424	15 45 34.342	282 24 1.43	− 31.36	52.03	+ 4 47 38.04	25.02
80	16 7 31.498	− .178	.446	16 6 5.874	345 40 41.91	+ 29.22	52.03	+68 5 19.10	. . .
82	16 11.998	+ .971	.455	16 14 47.514	252 16 53.97	− 94.61	52.03	−25 20 32.67	. . .
83	30 44.438	+ .991	.471	16 29 19.958	249 37 38.67	−106.26	52.03	−27 59 59.62	. . .
Gr. 848 S. P.	35 55.00	+ 2.38	.477	4 34 31.90	21 49 3.77	+114.29	52.03	+75 44 53.97	24.49
84	44 45.419	+ 1.041	.487	16 43 20.973	243 31 59.03	−144.44	52.03	−34 6 17.44	. . .
$\varkappa$ Ophiuchi	54 6.412	+ .730	.497	16 52 41.645	287 8 32.50	− 25.87	52.03	+ 9 32 14.60	25.29
85	59 9.183	+ .542	.502	16 57 44.223	311 19 6.31	− 3.10	52.03	+33 43 11.18	. . .
s. p. 86	17 10 17.305	+ .969	.514	17 8 52.760	251 10 29.57	− 99.06	52.03	−26 27 1.52	. . .
88	21 21.377	+ .952	.526	17 19 56.803	253 32 30.63	− 89.60	52.03	−24 4 51.00	. . .
α Ophiuchi	31 28.261	+ .708	.537	17 30 3.432	290 14 19.98	− 22.55	52.03	+12 38 5.40	25.37
β Ophiuchi	39 41.613	+ .759	.546	17 38 16.826	282 12 57.32	− 31.49	52.03	+ 4 36 33.80	24.98
δ Urs. Min.	18 8 15.17	− 5.67	.577	18 6 43.92	4 11 31.50	+ 56.82	52.03	+86 36 36.29	24.69
93	18 36.140	+ 1.025	.588	18 17 11.577	243 12 7.91	−147.04	52.03	−34 26 11.16	. . .
23 H. Cam. S. P.	29 28.20	+ 2.90	.600	6 28 5.50	17 53 26.55	+ 95.68	52.03	+79 40 49.80	25.62
96	51 17.68	− .63	.624	18 49 51.43	352 53 35.75	+ 38.27	52.03	+75 18 21.99	. . .
λ Aquilae	19 2 4.963	+ .812	.635	19 0 40.140	272 34 2.92	− 44.75	52.03	− 5 2 33.86	24.99
ω Aquilae	14 17.876	+ .708	.648	19 12 52.936	289 0 25.04	− 23.87	52.03	+11 24 9.14	25.52
δ Aquilae	21 36.734	+ .760	.657	19 20 11.837	280 30 33.73	− 33.64	52.03	+ 2 54 8.06	24.79
λ Urs. Min.	31 27.09	−19.96	−85.667	19 29 41.46	6 33 10.19	+ 61.87	52.03	+88 58 20.03	24.55

c −s.006 c' −s.023 ΔT −1m 25s.528 Nadir 134° 56′ 17″.16 t 57.8
b + .424 at 17h 23m Equator 277 35 52 .03 B 25.76
a + .776 at 18h.2 Rate −s.01 ρ −.065 T 58

JUNE 22, 1894. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
α Serpentis	15 40 31.380	+ .773	−86.915	15 39 5.238	284 21 43.78	− 28.93	51.76	+ 6 45 23.09	25.23
ε Serpentis	47 0.501	+ .786	.921	15 45 34.366	282 24 1.06	− 31.23	51.76	+ 4 47 38.07	25.42
Gr. 750 S. P.	16 4 32.70	+5.71	.938	4 3 ——	12 18 3.65	+76.27	51.76	+85 16 31.84	25.97
81	12 11.329	+ .557	.946	16 10 44.940	311 43 23.03	− 2.75	51.76	+34 7 28.52	. . .
ζ Ophiuchi	32 48.022	+ .885	.967	16 31 21.940	267 15 24.83	− 53.72	51.76	−10 21 20.65	25.83
ε Urs. Min.	58 26.59	− 2.11	.992	16 56 ——	359 47 39.30	+48.72	51.76	+82 12 36.26	25.16
α Herculis	17 11 17.692	+ .719	−87.005	17 9 51.406	292 6 44.43	− 20.64	51.76	+14 30 32.03	25.02
90	22 44.159	+ .789	.017	17 21 17.931	281 50 11.80	− 31.98	51.76	+ 4 13 48.06	. . .
α Ophiuchi	31 29.742	+ .732	.025	17 30 3.449	290 14 19.71	− 22.57	51.76	+12 38 5.38	25.87

c −s.010 c' −s.027 ΔT −1m 26s.966 Nadir 134° 56′ 17″.23 t 60.6
b + .443 at 16h 32m Equator 277 35 51 .76 B 25.86
a + .81 ρ −.060 T 62

JUNE 25, 1894. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
47 H. Cephei S. P.	14 53 25.72	+ 2.25	−91.155	2 51 56.82	18 34 15.88	+101.56	51.06	+78 59 53.62	24.38
β Librae . . .	15 12 50.905	+ .714	.174	15 11 20.445	268 36 59.95	− 52.88	51.06	− 8 59 43.99	25.26
γ Urs. Min. . .	22 29.27	− .23	.184	15 20 57.86	349 47 57.44	+ 35.19	51.06	+72 12 41.57	25 48
α Serpentis . .	40 35.763	+ .638	.203	15 39 5.198	284 21 44.36	− 29.84	51.06	+ 6 45 23.46	25.17
ε Serpentis . .	47 4.870	+ .646	.209	15 45 34.307	282 24 1.51	− 32.21	51.06	+ 4 47 38.24	25.51
80 . .	16 7 37.062	− .033	.230	16 6 5.779	345 40 41.42	+ 29.97	51.06	+68 5 20.33	. . .
82 . .	16 17.948	+ .783	.238	16 14 47.493	252 16 55.05	− 96.90	51.06	−25 20 32.91	. . .
83 . .	30 50.367	+ .795	.253	16 29 19.909	249 37 39.17	−108.68	51.06	−28 0 0.57	. . .
Gr. 848 S. P. . .	36 1.20	+ 1.84	.258	4 34 ——				+75 44 ——	. . .
84 . .	44 51.433	+ .826	.267	16 43 20.992	243 32 1.07	−147.85	51.06	−34 6 17.84	. . .
$\varkappa$ Ophiuchi . .	54 12.312	+ .619	.276	16 52 41.655	287 8 32.79	− 26.48	51.06	+ 9 32 15.25	25.52
85 . .	59 14.926	+ .486	.281	16 57 44.131	311 19 6.78	− 3.18	51.06	+33 43 12.54	. . .
86 . .	17 10 23.276	+ .778	.292	17 8 52.762	251 10 30.81	−101.50	51.06	−26 27 1.75	. . .
88 . .	21 27.377	+ .765	.303	17 19 56.839	253 32 32.49	− 91.82	51.06	−24 4 50.39	. . .
α Ophiuchi . .	31 34.161	+ .599	.314	17 30 3.446	290 14 20.97	− 23.11	51.06	+12 38 6.80	24.94
β Ophiuchi .	39 47.491	+ .637	.322	17 38 16.806	282 12 57.26	− 32.27	51.06	+ 4 36 33.93	25.64
δ Urs. Min. . .	18 8 18.77	− 3.97	.350	18 6 43.45	4 11 30.63	+ 58.20	51.06	+86 36 37.77	24.61
93 . .	18 42.182	+ .810	.361	18 17 11.631	243 12 10.85	−150.57	51.06	−34 26 10.78	. . .
23 H. Cam. S. P.	29 34.90	+ 2.19	.372	6 28 5.72	17 53 24.85	+ 97.90	51.06	+79 40 48.31	25.63
96 . .	51 23.17	− .34	.393	18 49 51.44	352 53 35.46	+ 39.16	51.06	+75 18 23.56	. . .
λ Aquilae . . .	19 2 10.927	+ .669	.404	19 0 40.192	272 34 2.60	− 45.79	51.06	− 5 2 34.25	25.99
ω Aquilae . . .	14 23.840	+ .597	.416	19 12 53.021	289 0 25.88	− 24.44	51.06	+11 24 10.38	25.32
δ Aquilae . . .	21 42.656	+ .634	.424	19 20 11.866	280 30 34.17	− 34.44	51.06	+ 2 54 8.67	25.00
λ Urs. Min. . .	31 25.95	−14.06	−91.433	19 29 40.46	6 33 9.52	+ 63.37	51.06	+88 58 21.83	24.16

Gr. 848, 2 wires.

c −ˢ.016 c' −ˢ.033 ΔT −1ᵐ 31ˢ.305 Nadir 134° 56′ 16″.43 t 46.9

b + .399 at 17ʰ 23ᵐ Equator 277 35 51 .06 B 25.83

a + .606 at 18ʰ.3 Rate −ˢ.01 ρ −.060 T 47

JUNE 26, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
47 H. Cephei S. P.	14 53 26.52	+ 3.03	−92.589	2 51 56.96	18 34 16.41	+ 99.97	50.80	+78 59 54.42	25.31
β Librae	15 12 52.233	+ .888	.612	15 11 20.509	268 36 58.79	− 52.05	50.80	− 8 59 44.06	25.41
γ Urs. Min. . .	22 30.95	− .45	.624	15 20 57.88	349 47 57.28	+ 34.63	50.80	+72 12 41.11	26.17
α Serpentis . .	40 37.041	+ .778	.645	15 39 5.174	284 21 44.32	− 29.36	50.80	+ 6 45 24.16	24.61
ε Serpentis . .	15 47 6.177	+ .790	.652	15 45 34.315	282 24 1.38	− 31.69	50.80	+ 4 47 38.89	24.99
80 . .	16 7 38.605	− .186	.676	16 6 5.743	345 40 42.11	+ 29.52	50.80	+68 5 20.83	. . .
82 . .	16 19.240	+ .991	.686	16 14 47.545	252 16 53.99	− 95.62	50.80	−25 20 32.42	. . .
83 . .	30 51.653	+ 1.010	.703	16 29 19.960	249 37 38.28	−107.43	50.80	−27 59 59.95	. . .
Gr. 848 S. P. . .	36 2.34	+ 2.48	.709	4 34 32.11	21 49 2.69	+115.57	50.80	+75 44 52.54	24.28
84 . .	44 52.698	+ 1.058	.719	16 43 21.037	243 31 59.28	−146.10	50.80	−34 6 17.62	. .
$\varkappa$ Ophiuchi . .	54 13.583	+ .747	.730	16 52 41.600	287 8 32.10	− 26.17	50.80	+ 9 32 15.13	25.80
85 . .	59 16.383	+ .553	.736	16 57 44.200	311 19 6.54	− 3.14	50.80	+33 43 12.60	. . .
86 . .	17 10 24.562	+ .987	.749	17 8 52.800	251 10 29.27	−100.23	50.80	−26 27 1.76	. . .
88 . .	21 28.706	+ .968	.762	17 19 56.912	253 32 30.73	− 90.64	50.80	−24 4 50.71	. . .
α Ophiuchi . .	31 35.446	+ .720	.774	17 30 3.392	290 14 19.88	− 22.81	50.80	+12 38 6.27	25.67
β Ophiuchi . .	39 48.841	+ .773	.784	17 38 16.830	282 12 56.62	− 31.85	50.80	+ 4 36 33.97	25.75
δ Urs. Min. . .	18 8 22.30	− 6.01	.817	18 6 43.47	4 11 31.27	+ 57.42	50.80	+86 36 37.89	24.82
93 . .	18 43.447	+ 1.040	.829	18 17 11.658	243 12 8.72	−148.57	50.80	−34 26 10.65	. . .
23 H. Cam. S. P.	29 35.58	+ 3.04	.842	6 28 5.78	17 53 26.02	+ 96.64	50.80	+79 40 48.14	25.79
96 . .	51 25.01	− .69	.867	18 49 51.45	352 53 35.56	+ 38.64	50.80	+75 18 23.40	. . .
λ Aquilae . . .	19 2 12.248	+ .822	.879	19 0 40.191	272 34 2.81	− 45.19	50.80	− 5 2 33.18	25.05
ω Aquilae . . .	14 25.240	+ .712	.893	19 12 53.059	289 0 24.81	− 24.11	50.80	+11 24 9.90	26.02
δ Aquilae . . .	21 44.020	+ .767	.903	19 20 11.884	280 30 33.70	− 33.98	50.80	+ 2 54 8.92	24.92
λ Urs. Min. . .	31 34.07	−21.37	−92.914	19 29 39.79	6 33 9.22	+ 62.52	50.80	+88 58 20.94	25.38

c −ˢ.019 c' −ˢ.036 ΔT −1ᵐ 32ˢ.764 Nadir 134° 56′ 16″.16 t 55.1

b + .442 at 17ʰ.4 Rate −ˢ.005 at 17ʰ 23ᵐ Equator 277 35 50 .80 B 25.89

a + .804 at 17 .4 Rate − .01 ρ −.070 T 55

JUNE 27, 1894. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Gr. 848 S. P. . .	16 36 3.64	+2.58	−94.124	4 34 ——	21 49 2.52	+114.86	50.92	+75 44 53.54	25.08
ϵ Urs. Min. . .	58 34.03	−2.35	.146	16 56 ——	359 47 39.16	+ 49.07	50.92	+82 12 37.31	25.10
α Herculis . . .	17 11 24.846	+ .699	.159	17 9 51.386	292 6 44.71	− 20.79	50.92	+14 30 33.00	24.54
90 . .	22 51.406	+ .773	.171	17 21 18.008	281 50 11.84	− 32.20	50.92	+ 4 13 48.72	. . .
α Ophiuchi . . .	31 36.918	+ .713	.180	17 30 3.451	290 14 20.40	− 22.73	50.92	+12 38 6.75	24.99
β Ophiuchi . . .	39 50.284	+ .770	−94.188	17 38 16.866	282 12 56.89	− 31.76	50.92	+ 4 36 34.21	25.29

c −s.026 c' −s.043 ΔT −1m 34s.176 Nadir 134° 56′ 15″.86 t 56.8
b + .43 at 17h 28m Equator 277 35 50 .92 B 25.86
a + .82 ρ − .060 T 57

JULY 5, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Gr. 750 S. P. . .	16 4 51.01	+4.58	−101.137	4 3 14.45	12 18 7.65	+ 75.02	51.51	+85 16 28.84	25.50
19 Urs. Min. . .	15 36.90	− .59	.144	16 13 55.17	353 43 53.54	+ 38.71	51.54	+76 8 40.71	24.86
ζ Ophiuchi . .	33 2.447	+ .711	.156	16 31 22.002	267 15 25.03	− 52.86	51.60	−10 21 19.43	25.30
κ Ophiuchi . .	54 22.157	+ .616	.170	16 52 41.603	287 8 33.79	− 25.42	51.67	+ 9 32 16.70	25.65
α Herculis . . .	17 11 32.065	+ .591	.182	17 9 51.474	292 6 46.37	− 20.30	51.73	+14 30 34.34	25.12
89 . .	22 18.745	+ .800	.189	17 20 38.356	247 51 17.75	−113.27	51.77	−29 46 27.29	. . .
Gr. 966 S. P. . .	27 11.35	+1.87	.192	5 25 32.03	22 35 30.73	+116.43	51.78	+74 58 24.62	25.80
β Ophiuchi . .	39 57.448	+ .636	.201	17 38 16.883	282 12 58.61	− 30.94	51.83	+ 4 36 35.84	25.32
ν Ophiuchi . .	54 54.890	+ .698	.211	17 53 14.377	267 50 59.03	− 51.72	51.88	− 9 45 44.57	26.00
s. f. 91 . .	18 1 49.320	+ .643	.215	18 0 8.748	280 7 45.61	− 33.46	51.90	+ 2 31 20.25	. . .
δ Urs. Min. . .	8 24.29	−4.44	.220	18 6 38.63	4 11 36.96	+ 55.80	51.92	+86 36 40.84	24.85
94 . .	23 9.519	+ .767	.229	18 21 29.057	252 8 30.59	− 93.24	51.97	−25 28 54.62	. . .
95 . .	31 9.833	+ .687	.235	18 29 29.285	269 17 30.96	− 49.18	52.00	− 8 19 10.22	. . .
97 . .	57 36.166	+ .784	.252	18 55 55.698	247 35 49.60	−114.50	52.08	−30 1 56.98	. . .
λ Aquilae . . .	19 2 20.906	+ .670	.256	19 0 40.320	272 34 3.71	− 43.86	52.10	− 5 2 32.25	25.45
98 . .	13 9.794	+ .729	.263	19 11 29.260	258 28 32.50	− 72.40	52.14	−19 8 32.04	. . .
99 . .	21 38.333	+ .594	.269	19 19 57.658	289 19 16.62	− 23.07	52.16	+11 43 1.39	. . .
100 . .	32 54.919	+ .676	.276	19 31 14.319	270 20 50.90	− 47.39	52.20	− 7 15 48.69	. . .
101 . .	38 0.655	+ .566	.279	19 36 19.942	294 49 57.00	− 17.62	52.22	+17 13 47.16	. . .
γ Aquilae . .	42 56.612	+ .599	.283	19 41 15.928	287 57 32.51	− 24.50	52.24	+10 21 15.77	25.80
β Aquilae . . .	51 49.806	+ .616	.289	19 50 9.133	283 44 51.61	− 29.13	52.27	+ 6 8 30.21	25.23
102 . .	57 52.438	+ .765	.292	19 56 11.911	249 37 22.70	−104.16	52.29	−28 0 13.75	. . .
Br. 1147 S. P. . .	20 7 52.02	+1.86	.299	8 6 12.58	21 29 5.34	+110.30	52.32	+76 4 56.68	26.01
κ Cephei . . .	14 12.47	− .60	−101.303	20 12 30.57	354 58 34.98	+ 40.44	52.34	+77 23 23.08	25.38

c −s.032 c' −s.049 ΔT −1m 41s.218 Nadir 134° 56′ 17″.48 at 18h.4 t 70.6
b + .404 at 18h 6m Equator 277 35 51 .93 at 18 .1 B 25.92
a + .630 at 18h.0 Rate −s.01 ρ − .040 Rate +0″.20 hourly T 70

JULY 6, 1894. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Gr. 750 S. P. . .	16 4 53.00	+4.14	−101.822	4 3 15.32	12 18 5.99	+ 75.55	51.46	+85 16 29.92	(27.05)
19 Urs. Min. . .	15 37.39	− .39	.828	16 13 55.17	353 43 52.54	+ 38.99	51.48	+76 8 40.05	25.04
ζ Ophiuchi . . .	33 3.076	+ .753	.837	16 31 21.992	267 15 25.14	− 53.24	51.51	−10 21 19.61	25.84
κ Ophiuchi . . .	54 22.805	+ .668	.847	16 52 41.626	287 8 34.03	− 25.59	51.55	+ 9 32 16.89	25.91
α Herculis . . .	17 11 32.689	+ .645	.856	17 9 51.478	292 6 46.91	− 20.43	51.58	+14 30 34.90	25.04
89 . .	22 19.473	+ .832	.861	17 20 38.444	247 51 19.21	−114.05	51.59	−29 46 26.53	. . .
Gr. 966 S. P. . .	27 11.82	+1.75	.864	5 25 31.71	22 35 29.88	−117.27	51.60	+74 58 24.45	26.16
β Ophiuchi . . .	39 58.056	+ .685	.870	17 38 16.871	282 12 58.41	− 31.17	51.62	+ 4 36 35.62	25.99
ν Ophiuchi . . .	54 55.583	+ .742	.877	17 53 14.448	267 50 59.31	− 52.13	51.65	− 9 45 44.47	26.27
91 . .	18 1 49.977	+ .691	.881	18 0 8.787	280 7 46.08	− 33.73	51.66	+ 2 31 20.69	. . .
δ Urs. Min. . .	8 27.01	−3.74	.884	18 6 41.39	4 11 36.46	+ 56.26	51.67	+86 36 41.05	25.24
92 . .	15 57.045	+ .824	.888	18 14 15.981	247 45 16.27	−114.61	51.68	−29 52 30.02	. . .
94 . .	23 10.148	+ .804	.892	18 21 29.060	252 8 31.01	− 94.01	51.70	−25 28 54.70	. . .
95 . .	31 10.526	+ .732	.896	18 29 29.362	269 17 31.28	− 49.58	51.71	− 8 19 10.01	. . .
97 . .	57 36.716	+ .818	.909	18 55 55.625	247 35 50.85	−115.47	51.75	−30 1 56.37	. . .
λ Aquilae . . .	19 2 21.548	+ .715	.911	19 0 40.352	272 34 3.55	− 44.21	51.76	− 5 2 32.42	26.02
98 . .	13 10.337	+ .768	.917	19 11 29.188	258 28 33.05	− 72.96	51.78	−19 8 31.69	. . .
99 . .	21 38.925	+ .647	.921	19 19 57.651	289 19 16.61	− 23.23	51.79	+11 43 1.59	. . .
100 . .	32 55.562	+ .720	.926	19 31 14.356	270 20 51.55	− 47.69	51.81	− 7 15 47.95	. . .
101 . .	38 1.224	+ .622	.929	19 36 19.917	294 49 57.40	− 17.72	51.82	+17 13 47.86	. . .
γ Aquilae . . .	42 57.170	+ .651	.931	19 41 15.890	287 57 32.70	− 24.64	51.83	+10 21 16.23	25.84
β Aquilae . . .	51 50.406	+ .666	.936	19 50 9.136	283 44 51.36	− 29.28	51.84	+ 6 8 30.24	25.69
102 . .	57 53.046	+ .799	.939	19 56 11.906	249 37 23.16	−104.63	51.85	−28 0 13.32	. . .
Br. 1147 S. P. . .	20 7 52.98	+1.73	.944	8 6 12.77	21 29 5.71	+110.72	51.87	+76 4 55.44	25.35
κ Cephei	14 13.05	− .39	−101.947	20 12 30.71	354 58 35.41	+ 40.57	51.88	+77 23 24.10	25.00

c −ˢ.019 *c′* −ˢ.036 ΔT −1ᵐ 41ˢ.886 Nadir 134° 56′ 17″.52 at 18ʰ.4 *t* 66.5
b + .447 at 18ʰ 6ᵐ Equator 277 35 51 .67 at 18 .1 B 25.89
a + .630 at 18ʰ.0 Rate −ˢ.01 *ρ* −.030 Rate +0″.10 hourly T 68

JULY 11, 1894. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Gr. 750 S. P. . .	16 4 57.24	+3.98	−104.683	4 3 16.54	12 18 8.02	+ 75.45	51.70	+85 16 28.23	25.87
19 Urs. Min. . .	15 39.90	− .36	.691	16 13 54.85	353 43 54.89	+ 38.92	51.71	+76 8 42.10	24.78
ζ Ophiuchi . . .	33 5.933	+ .734	.702	16 31 21.965	267 15 25.45	− 53.11	51.74	−10 21 19.40	25.60
κ Ophiuchi . . .	54 25.633	+ .654	.716	16 52 41.571	287 8 35.36	− 25.52	51.78	+ 9 32 18.06	25.15
α Herculis . . .	17 11 35.539	+ .631	.728	17 9 51.442	292 6 47.90	− 20.38	51.81	+14 30 35.67	24.80
89 . .	22 22.280	+ .809	.735	17 20 38.354	247 51 18.97	−113.83	51.82	−29 46 26.68	. . .
Gr. 966 S. P. . .	27 15.11	+1.69	.738	5 25 32.06	22 35 31.11	+117.04	51.83	+74 58 23.68	26.15
β Ophiuchi . . .	40 0.970	+ .669	.747	17 38 16.892	282 12 59.78	− 31.12	51.85	+ 4 36 36.81	25.18
ν Ophiuchi . . .	54 58.462	+ .724	.757	17 53 14.429	267 50 59.25	− 52.06	51.88	− 9 45 44.69	26.51
91 . .	18 1 52.877	+ .674	.761	18 0 8.790	280 7 46.92	− 33.68	51.89	+ 2 31 21.35	. . .
δ Urs. Min. . .	8 29.15	−3.56	.766	18 6 40.82	4 11 38.29	+ 56.16	51.90	+86 36 42.51	24.95
92 . .	15 59.909	+ .799	.771	18 14 15.937	247 45 16.14	−114.40	51.91	−29 52 30.21	. . .
94 . .	23 13.083	+ .754	.775	18 21 29.062	252 8 31.03	− 93.83	51.92	−25 28 54.72	. . .
95 . .	31 13.376	+ .712	.781	18 29 29.307	269 17 31.45	− 49.48	51.94	− 8 19 9.97	. . .
97 . .	57 39.716	+ .795	.798	18 55 55.713	247 35 50.40	−115.23	51.98	−30 1 56.81	. . .
λ Aquilae . . .	19 2 24.477	+ .697	.802	19 0 40.372	272 34 3.76	− 44.14	51.99	− 5 2 32.37	26.18
98 . .	13 13.287	+ .747	.809	19 11 29.225	258 28 33.13	− 72.90	52.01	−19 8 31.78	. . .
99 . .	21 41.883	+ .632	.815	19 19 57.700	289 19 17.50	− 23.23	52.02	+11 43 2.25	. . .
100 . .	32 58.505	+ .702	.822	19 31 14.385	270 20 51.74	− 47.72	52.04	− 7 15 48.02	. . .
101 . .	38 4.231	+ .610	.825	19 36 20.016	294 49 58.37	− 17.74	52.05	+17 13 48.58	. . .
γ Aquilae . . .	43 0.176	+ .636	.829	19 41 15.983	287 57 34.04	− 24.67	52.06	+10 21 17.31	25.41
β Aquilae . . .	51 53.356	+ .651	.835	19 50 9.172	283 44 52.94	− 29.34	52.07	+ 6 8 31.53	24.95
103 . .	20 0 44.633	+ .647	.840	19 59 0.440	284 35 5.11	− 28.38	52.09	+ 6 58 44.64	. . .
Br. 1147 S. P. . .	7 55.96	+1.66	.845	8 6 12.78	21 29 6.78	+111.06	52.10	+76 4 54.26	25.26
κ Cephei	14 16.01	− .35	−104.849	20 12 30.81	354 58 37.11	+ 40.71	52.11	+77 23 25.71	24.78

c −ˢ.019 *c′* −ˢ.036 ΔT −1ᵐ 44ˢ.766 Nadir 134° 56′ 17″.40 at 18ʰ.3 *t* 67.3
b + .441 at 18ʰ 6ᵐ Equator 277 35 51 .90 at 18 .1 B 25.91
a + .605 at 18ʰ.2 Rate −ˢ.01 *ρ* −.040 Rate +0″.10 hourly T 69

JULY 13, 1894. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
Gr. 750 S. P.	16 4 58.94	+3.90	−105.891	4 3 16.95	12 18 9.19	+ 75.29	52.23	+85 16 27.75	25.74
19 Urs. Min.	15 40.95	− .32	.897	16 13 54.73	353 43 55.75	+ 38.85	52.23	+76 8 42.37	24.97
ζ Ophiuchi	33 7.069	+ .745	.905	16 31 21.909	267 15 25.88	− 53.03	52.23	−10 21 19.38	25.74
κ Ophiuchi	54 26.826	+ .665	.916	16 52 41.575	287 8 35.72	− 25.49	52.23	+ 9 32 18.00	25.54
α Herculis	17 11 36.720	+ .643	.925	17 9 51.438	292 6 48.27	− 20.36	52.23	+14 30 35.68	25.19
89	22 23.509	+ .824	.930	17 20 38.403	247 51 18.44	−113.67	52.23	−29 46 27.46	. . .
Gr. 966 S. P.	27 16.40	+1.70	.933	5 25 32.17	22 35 32.65	+116.87	52.23	+74 58 22.71	25.67
β Ophiuchi	40 2.202	+ .681	.939	17 38 16.944	282 13 0.44	− 31.08	52.23	+ 4 36 37.13	25.21
ν Ophiuchi	54 59.676	+ .737	.946	17 53 14.467	267 51 0.30	− 52.00	52.23	− 9 45 43.93	25.96
91	18 1 53.993	+ .687	.950	18 0 8.730	280 7 47.95	− 33.65	52.23	+ 2 31 22.07	. . .
δ Urs. Min.	8 30.35	−3.61	.953	18 6 40.79	4 11 39.28	+ 56.13	52.23	+86 36 43.18	24.96
92	16 1.123	+ .819	.957	18 14 15.985	247 45 16.59	−114.37	52.23	−29 52 30.01	. . .
94	23 14.325	+ .799	.961	18 21 29.163	252 8 31.15	− 93.83	52.23	−25 28 54.91	. . .
95	31 14.540	+ .727	.965	18 29 29.302	269 17 32.11	− 49.50	52.23	− 8 19 9.62	. . .
97	57 40.845	+ .815	.978	18 55 55.682	247 35 51.37	−115.36	52.23	−30 1 56.22	. . .
λ Aquilae	19 2 25.687	+ .712	.980	19 0 40.419	272 34 4.94	− 44.19	52.23	− 5 2 31.48	25.58
98	13 14.544	+ .765	.986	19 11 29.323	258 28 33.29	− 72.95	52.23	−19 8 31.89	. . .
99	21 43.076	+ .643	.990	19 19 57.729	289 19 17.81	− 23.24	52.23	+11 43 2.34	. . .
100	32 59.655	+ .717	.995	19 31 14.377	270 20 52.17	− 47.74	52.23	− 7 15 47.80	. . .
101	38 5.360	+ .618	.998	19 36 19.980	294 49 58.84	− 17.75	52.23	+17 13 48.86	. . .
γ Aquilae	43 1.305	+ .646	−106.001	19 41 15.950	287 57 34.25	− 24.68	52.23	+10 21 17.34	25.88
β Aquilae	51 54.527	+ .663	.005	19 50 9.185	283 44 53.57	− 29.34	52.23	+ 6 8 32.00	24.93
103	20 0 45.843	+ .659	.009	19 59 0.493	284 35 5.51	− 28.38	52.23	+ 6 58 44.90	. . .
Br. 1147 S. P.	7 57.10	+1.76	.013	8 6 12.75	21 29 6.87	+111.04	52.23	+76 4 54.32	26.02
κ Cephei	14 17.09	− .41	.016	20 12 30.66	354 58 37.63	+ 40.70	52.23	+77 23 26.10	25.19

c −s.016 c' −s.033 ΔT −1m 45s.952 Nadir 134° 56′ 17″.73 t 67.6
b + .444 at 18h.4 Rate −s.003 at 18h 6m Equator 277 35 52 .23 B 25.91
a + .622 at 17 .8 Rate − .005 ρ −.030 T 69

JULY 16, 1894. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ν Ophiuchi	17 55 1.369	+ .739	−107.698	17 53 14.408	267 50 59.70	− 51.76	51.61	− 9 45 43.67	25.71
91	18 1 55.834	+ .689	.701	18 0 8.822	280 7 46.75	− 33.48	51.62	+ 2 31 21.65	. . .
δ Urs. Min.	8 31.47	− 3.93	.704	18 6 39.84	4 11 39.89	+ 55.85	51.63	+86 36 44.11	24.71
92	16 2.802	+ .829	.708	18 14 15.923	247 45 15.05	−113.77	51.64	−29 52 30.36	. . .
51 H. Cephei S. P.	52 17.96	+ 6.40	.726	6 50 36.63	10 21 51.75	+ 69.56	51.67	+87 12 50.36	25.32
λ Aquilae	19 2 27.456	+ .721	.731	19 0 40.446	272 34 3.96	− 43.89	51.68	− 5 2 31.61	25.86
ω Aquilae	14 40.347	+ .650	.737	19 12 53.260	289 0 29.88	− 23.41	51.69	+11 24 14.78	25.23
δ Aquilae	21 59.163	+ .687	.741	19 20 12.110	280 30 36.96	− 32.98	51.70	+ 2 54 12.28	24.92
λ Urs. Min.	31 41.03	−14.68	.746	19 29 38.60	6 33 19.44	+ 60.65	51.71	+88 58 28.38	24.71
γ Aquilae	43 3.119	+ .654	.752	19 41 16.021	287 57 34.96	− 24.49	51.72	+10 21 18.75	24.94
Gr. 1374 S. P.	49 15.97	+ 1.71	.755	7 47 29.93	23 21 46.28	+120.77	51.73	+74 12 4.68	23.59
9 Aquilae	20 7 40.191	+ .704	.764	20 5 53.131	276 28 23.09	− 38.20	51.75	− 1 8 6.86	25.10
dup. 104	23 5.552	+ .777	.772	20 21 18.557	259 3 32.97	− 70.84	51.76	−18 33 29.63	. . .
105	32 18.80	− .12	.776	20 30 30.90	349 45 35.05	+ 33.46	51.77	+72 10 16.74	. . .
108	48 46.319	+ .738	.784	20 46 59.273	268 13 56.70	− 51.03	51.79	− 9 22 46.12	. . .
Br. 2777	21 9 28.43	− .52	.795	21 7 40.11	355 16 52.66	+ 40.87	51.81	+77 41 41.72	25.24
1 H. Draco. S. P.	23 42.04	+ 2.65	.802	9 21 56.89	15 46 39.85	+ 85.98	51.82	+81 47 45.99	24.32
112	33 56.569	+ .734	.807	21 32 9.496	269 17 3.02	− 49.22	51.83	− 8 19 38.03	. . .
ε Pegasi	40 48.562	+ .660	.810	21 39 1.412	286 59 43.63	− 25.55	51.84	+ 9 23 26.24	25.29
113	49 21.125	+ .757	.815	21 47 34.067	263 34 0.24	− 60.21	51.85	−14 2 51.82	. . .
24 Cephei	22 9 36.48	− .11	.825	22 7 48.55	349 24 21.45	+ 33.09	51.87	+71 49 2.67	25.72
γ Aquarii	18 0.727	+ .707	.829	22 16 13.605	275 41 23.55	− 39.36	51.88	− 1 55 7.69	25.55
9 H. Draco. S. P.	27 51.52	+ 1.87	.834	10 26 5.56	21 18 23.27	+109.49	51.89	+76 15 39.13	24.67
λ Aquarii	48 54.826	+ .733	.844	22 47 7.715	269 28 16.28	− 48.92	51.91	− 8 8 24 55	25.55
α Pegasi	23 1 18.304	+ .637	−107.851	22 59 31.090	292 14 25.73	− 20.15	51.92	+14 38 13.66	25.00

c −s.022 c' −s.039 ΔT −1m 47s.776 Nadir 134° 56′ 17″.11 at 20h.9 t 69.8
b + .443 at 18h 31m Equator 277 35 51 .77 at 20 .5 B 25.88
a + .636 ρ −.030 Rate +0″.06 hourly T 70

JULY 18, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
λ Aquilae . . .	19 2 28.627	+ .710	− 108.886	19 0 40.451	272 34 5.25	− 44.10	52.01	− 5 2 30.86	25.51
ω Aquilae . . .	14 41.537	+ .650	.892	19 12 53.295	289 0 30.87	− 23.53	52.01	+11 24 15.33	25.27
δ Aquilae . . .	22 0.406	+ .672	.896	19 20 12.182	280 30 37.83	− 33.17	52.01	+ 2 54 12.65	25.07
λ Urs. Min. .	31 38.96	− 11.71	.901	19 29 38.35	6 33 20.87	+ 61.03	52.01	+88 58 29.89	24.07
γ Aquilae . . .	43 4.290	+ .647	.907	19 41 16.030	287 57 35.44	− 24.66	52.01	+10 21 18.77	25.53
Gr. 1374 S. P. .	49 17.38	+ 1.49	.910	7 47 29.96	23 21 46.58	+121.61	52.01	+74 12 3.82	23.30
102 . .	58 0.331	+ .769	.914	19 56 12.186	249 37 22.62	− 104.87	52.01	− 28 0 14.26	. . .
Br. 1147 S. P. .	20 8 0.15	+ 1.58	.919	8 6 12.81	21 29 9.72	+111.11	52.01	+76 4 51.18	24.56
κ Cephei	14 19.88	− .26	.922	20 12 30.70	354 58 39.52	+ 40.75	52.01	+77 23 28.26	24.94
107 . .	43 59.977	+ .682	.937	20 42 11.722	272 11 45.01	− 44.95	52.01	− 5 24 51.95	. . .
109 . .	21 1 50.923	+ .711	.946	21 0 2.688	259 57 54.26	− 69.36	52.01	− 17 39 7.11	. . .
110 . .	15 6.092	+ .515	.953	21 13 17.654	316 32 51.82	+ 1.37	52.01	+38 57 1.18	. . .
111 . .	22 41.66	− 2.64	.956	21 20 50.06	4 10 42.40	+ 56.44	52.01	+86 35 46.83	. . .
ε Pegasi	40 49.819	+ .623	.965	21 39 1.477	286 59 44.22	− 25.86	52.01	+ 9 23 26.35	25.85
114 . .	53 23.94	+ .04	.972	21 51 35.01	350 47 15.01	+ 35.28	52.01	+73 11 58.28	. . .
24 Cephei . . .	22 9 37.36	+ .09	.980	22 7 48.47	349 24 21.70	+ 33.56	52.01	+71 49 3.25	26.07
γ Aquarii . . .	18 1.934	+ .645	.984	22 16 13.595	275 41 24.36	− 39.90	52.01	− 1 55 7.55	25.99
9 H. Draco. S. P.	27 53.15	+ 1.43	.989	10 26 5.59	21 18 21.17	+110.96	52.01	+76 15 39.88	26.06
λ Aquarii . . .	48 56.119	+ .653	.999	22 47 7.773	269 28 17.56	− 49.54	52.01	− 8 8 23.99	25.55
α Pegasi	23 1 19.582	+ .591	− 109.006	22 59 31.167	292 14 25.91	− 20.39	52.01	+14 38 13.51	25.89

c −ˢ.019 c' −ˢ.036 ΔT −1ᵐ 48ˢ.942 Nadir 134° 56′ 17″.59 t 65.8

b + .454 at 20ʰ.8 Rate −ˢ.005 at 20ʰ 54ᵐ Equator 277 35 52 .01 B 25.95

a + .565 at 20 .5 Rate − .02 ρ − .030 T 67

JULY 20, 1894. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
λ Aquilae . . .	19 2 29.920	+ .672	− 110.112	19 0 20.480	272 34 5.71	− 44.54	51.68	− 5 2 30.51	25.64
ω Aquilae . . .	14 42.740	+ .628	.119	19 12 53.249	289 0 30.53	− 23.75	51.70	+11 24 15.08	26.17
δ Aquilae . . .	22 1.691	+ .652	.123	19 20 12.220	280 30 36.88	− 33.45	51.71	+ 2 54 11.72	26.58
λ Urs. Min. .	31 37.34	− 9.04	.129	19 29 38.17	6 33 18.86	+ 61.50	51.73	+88 58 28.63	26.28
γ Aquilae . . .	43 5.590	+ .631	.136	19 41 16.085	287 57 35.11	− 24.83	51.75	+10 21 18.53	26.44
Gr. 1374 S. P. .	49 18.96	+ 1.30	.139	7 47 30.12	23 21 43.75	+122.39	51.76	+74 12 5.62	26.02
103 . .	20 0 50.091	+ .640	.147	19 59 0.584	284 35 6.02	− 28.54	51.78	+ 6 58 45.70	. . .
9 Aquilae . . .	7 42.648	+ .662	.150	20 5 53.160	276 28 23.90	− 38.69	51.79	− 1 8 6.58	25.88
104 . .	23 8.044	+ .707	.160	20 21 18.591	259 3 33.54	− 71.68	51.81	− 18 33 29.95	. . .
105 . .	32 20.95	+ .14	.165	20 30 30.93	349 45 36.69	+ 33.84	51.83	+72 10 18.70	. . .
106 . .	41 42.240	+ .727	.171	20 39 52.796	251 58 26.53	− 94.93	51.85	− 25 39 0.25	. . .
108 . .	48 48.869	+ .683	.175	20 46 59.377	268 13 57.67	− 51.56	51.86	− 9 22 45.75	. . .
Br. 2777 . . .	21 9 30.40	− .12	.188	21 7 40.09	355 16 54.40	+ 41.25	51.89	+77 41 43.76	25.19
1 H. Draco. S. P.	23 44.84	+ 1.89	.196	9 21 56.53	15 46 40.62	+ 86.73	51.91	+81 47 44.56	24.72
112 . .	33 59.119	+ .680	.202	21 32 9.597	269 17 4.35	− 49.61	51.93	− 8 19 37.19	. . .
ε Pegasi	40 50.997	+ .635	.207	21 39 1.425	286 59 45.26	− 25.74	51.94	+ 9 23 27.58	25.37
113 . .	49 23.661	+ .695	.212	21 47 34.144	263 34 1.82	− 60.61	51.96	− 14 2 50.75	. . .
24 Cephei . . .	22 9 38.67	+ .14	.224	22 7 48.59	349 24 23.77	+ 33.29	51.99	+71 49 5.07	25.26
γ Aquarii . . .	18 3.213	+ .663	.229	22 16 13.647	275 41 25.49	− 39.62	52.01	− 1 55 6.14	25.23
9 H. Draco. S. P.	27 54.35	+ 1.39	.235	10 26 5.51	21 18 23.69	+110.30	52.02	+76 15 38.03	25.19
λ Aquarii . . .	48 57.369	+ .680	.247	22 47 7.802	269 28 17.74	− 49.37	52.06	− 8 8 23.69	25.86
α Pegasi	23 1 20.868	+ .620	− 110.255	22 59 31.233	292 14 26.21	− 20.34	52.08	+14 38 13.79	26.41

c −ˢ.010 c' −ˢ.027 ΔT −1ᵐ 50ˢ.175 Nadir 134° 56′ 17″.81 at 20ʰ.7 t 66.2

b + .455 at 20ʰ 49ᵐ Equator 277 35 51 .86 at 20 .8 B 25.96

a + .533 ρ − .036 Rate + 0″.10 hourly T 67

JULY 23, 1894. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
λ Aquilae . . .	19 2 31.770	+ .701	− 111.968	19 0 40.503	272 34 5.47	− 44.30	52.20	− 5 2 31.03	25.96
ω Aquilae . . .	14 44.583	+ .657	.974	19 12 53.266	289 0 31.85	− 23.62	52.24	+11 24 15.99	25.33
δ Aquilae . . .	22 3.506	+ .678	.978	19 20 12.206	280 30 38.38	− 33.28	52.26	+ 2 54 12.84	25.42
λ Urs. Min. . .	31 37.22	−8.46	.983	19 29 36.78	6 33 21.78	+ 61.21	52.30	+88 58 30.69	24.70
γ Aquilae . . .	43 7.383	+ .658	989	19 41 16.052	287 57 36.36	− 24.72	52.34	+10 21 19.30	25.73
Gr. 1374 S. P. . .	49 20.88	+1.27	.992	7 47 30.16	23 21 47.22	+121.88	52.36	+74 12 3.26	24.04
102 . .	58 3.418	+ .754	996	19 56 12.176	249 37 23.28	−105.04	52.39	− 28 0 14.15	. . .
Br. 1147 S. P. . .	20 8 3.78	+1.34	− 112.001	8 6 13.12	21 29 11.24	+111.20	52.42	+76 4 49.98	24.70
κ Cephei . . .	14 22.73	− .01	.004	20 12 30.72	354 58 41.27	+ 40.76	52.44	+77 23 29.59	25.19
107 . .	44 3.120	+ .690	.019	20 42 11.791	272 11 46.19	− 44.81	52.54	− 5 24 51.16	. . .
109 . .	21 1 54.023	+ .717	.028	21 0 2.712	259 57 54.41	− 69.09	52.60	−17 39 7.28	. . .
110 . .	15 9.120	+ .564	.035	21 13 17.649	316 32 54.47	+ 1.36	52.64	+38 57 3.19	. . .
111 . .	22 43.84	−1.81	.038	21 20 49.99	4 10 45.43	+ 56.23	52.66	+86 35 49.00	. . .
ε Pegasi	40 52.912	+ .651	.047	21 39 1.516	286 59 46.29	− 25.75	52.73	+ 9 23 27.81	25.22
114 . .	53 27.00	+ .20	.054	21 51 35.15	350 47 17.67	+ 35.08	52.77	+73 12 0.98	. . .
24 Cephei . . .	22 9 40.60	+ .25	.062	22 7 48.79	349 24 24.31	+ 33.34	52.83	+71 49 4.82	26.04
γ Aquarii . . .	18 5.077	+ .672	.066	22 16 13.683	275 41 26.66	− 39.65	52.85	− 1 55 5.84	24.86
9 H. Draco. S. P.	27 56.24	+1.26	.071	10 26 5.43	21 18 25.24	+110.33	52.88	+76 15 37.31	24.79
λ Aquarii . . .	48 59.305	+ .681	.081	22 47 7.905	269 28 19.21	− 49.37	52.96	− 8 8 23.12	25.16
α Pegasi	23 1 22.689	+ .632	− 112.088	22 59 31.233	292 14 27.35	− 20.34	53.00	+14 38 14.01	26.35

c −ˢ.003 c' −ˢ.020 ΔT −1ᵐ 52ˢ.023 Nadir 134° 56′ 18″.03 at 20ʰ.6 t 66.9
b + .473 at 20ʰ 54ᵐ Equator 277 35 52 .57 at 20 .9 B 25.95
a + .531 at 20ʰ.6 Rate −ˢ.01 ρ −.030 Rate +0″.20 hourly T 67

JULY 25, 1894. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ω Aquilae . . .	19 12 45.919	+ .614	+6.756	19 12 53.289	289 0 32.10	−23.92	52.19	+11 24 15.99	25.26
δ Aquilae . . .	20 4.798	+ .627	.752	19 20 12.177	280 30 38.96	−33.71	52.19	+ 2 54 13.06	25.04
λ Urs. Min. . .	29 34.27	−5.13	.748	19 29 ——	——			+88 58 ——	. . .
Gr. 1374 S. P. . .	47 22.44	+1.01	.739	7 47 ——	——			+74 12 ——	. . .
103 . .	58 53.277	+ .621	.733	19 59 0.631	284 35 8.12	−28.82	52.19	+ 6 58 47.11	. . .
9 Aquilae . . .	20 5 45.798	+ .633	.730	20 5 53.161	276 28 25.71	−39.10	52.19	− 1 8 5.58	24.61
ε Delphini . . .	28 4.483	+ .615	.719	20 28 11.817	288 32 55.21	−24.44	52.19	+10 56 38.58	25.20
106 . .	39 45.462	+ .669	+6.714	20 39 52.845	251 58 27.63	−96.15	52.19	−25 39 0.71	. . .

c −ˢ.003 c' −ˢ.020 ΔT −6ˢ.739 Nadir 134° 56′ 17″.22 t 58.7
b + .467 at 19ʰ 47ᵐ Equator 277 35 52 .19 B 25.86
a + .46 ρ −.03 T 59

OCTOBER 3, 1894. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
ε Aquarii . . .	20 41 39.844	+ .050	+19.464	20 41 59.358	2 9 40.38	+ 52.27	38.45	− 9 52 54.20	25.71
α Equulei . . .	21 10 15.022	− .033	.436	21 10 34.425	347 28 18.67	+ 30.91	38.45	+ 4 48 48.87	25.36
1 H. Draco. S. P.	21 40.07	+ 2.39	.424	9 22 1.88	254 6 26.47	− 86.69	38.45	+81 47 21.33	25.66
ε Pegasi	38 42.387	− .061	.407	21 39 1.733	342 53 35.53	+ 25.74	38.45	+ 9 23 37.18	25.94
20 Pegasi	55 39.103	− .082	.390	21 55 58.411	339 40 13.63	+ 22.33	38.45	+12 37 2.49	25.07
24 Cephei	22 7 30.16	− 1.04	.379	22 7 48.50	280 28 40.24	− 33.29	38.45	+71 49 31.50	25.36
145 l. c.	13 51.44	+ 3.79	.372	10 14 14.60	257 6 0.35	− 76.94	38.45	+84 47 4.96	. . .
116 . .	19 35.751	− .017	.366	22 19 55.100	351 26 23.30	+ 35.84	38.45	+ 0 50 39.31	. . .
117 . .	24 46.402	+ .051	.361	22 25 5.814	3 29 41.81	+ 54.80	38.45	−11 12 58.16	. . .
118 . .	30 9.18	− 1.34	.356	22 30 27.20	276 37 5.44	− 38.31	38.45	+75 41 11.32	. . .
λ Aquarii	46 49.209	+ .033	.339	22 47 8.581	0 25 8.69	+ 49.21	38.45	− 8 8 19.45	25.45
α Pegasi	59 12.788	− .098	.327	22 59 32.017	337 38 51.19	+ 20.27	38.45	+14 38 26.99	26.37
119 . .	23 8 34.151	+ .023	.317	23 8 53.491	358 53 46.45	+ 46.69	38.45	− 6 36 54.69	. . .
120 . .	14 1.117	− .831	.312	23 14 19.598	284 45 50.85	− 28.21	38.45	+67 32 15.81	. . .
κ Piscium . . .	21 14.043	− .019	.305	23 21 33.329	351 36 9.98	+ 36.07	38.45	+ 0 40 52.40	25.15
122 . .	27 43.84	− 6.06	.298	23 27 57.08	265 34 52.50	− 56.46	38.45	+86 43 42.41	. . .
γ Cephei	34 46.23	− 1.51	.291	23 35 4.01	275 15 29.77	− 40.26	38.45	+77 2 48.94	24.25
124 . .	49 26.53	− 1.20	.277	23 49 44.61	278 28 39.21	− 35.86	38.45	+73 49 35.10	. . .
125 . .	56 15.729	+ .020	.270	23 56 35.019	358 52 41.17	+ 46.70	38.45	− 6 35 49.42	. . .
4 H. Draco. S. P.	0 6 51.84	+ 1.69	.259	12 7 12.79	250 31 20.97	−100.93	38.45	+78 12 1.59	24.69
57 l. c.	13 30.87	+11.67	.252	12 14 1.79	260 35 42.54	− 67.55	38.45	+88 16 56.54	. . .
12 Ceti	24 22.022	+ .006	.242	0 24 41.270	356 49 6.57	+ 43.47	38.45	− 4 32 11.59	25.64
4 . .	29 31.879	+ .004	.236	0 29 51.119	356 27 7.24	+ 42.91	38.45	− 4 10 11.70	. . .
6 . .	42 33.672	− .047	.223	0 42 52.848	347 32 35.55	+ 31.03	38.45	+ 4 44 31.87	. . .
61 l. c.	47 52.30	+ 3.35	.218	12 48 14.87	256 18 2.29	− 79.46	38.45	+83 59 4.38	. . .
43 H. Cephei . .	54 16.51	− 4.68	.212	0 54 31.04	266 36 58.00	− 54.49	38.45	+85 41 34.94	25.43
ϑ Ceti	1 18 27.880	+ .028	.188	1 18 47.096	1 0 12.47	+ 50.32	38.45	− 8 43 24.34	25.76
Gr. 2001 S. P. .	23 4.28	+ 1.16	+19.183	13 23 24.62	245 16 7.23	−130.08	38.45	+72 56 18.70	25.40

c −ˢ.010 c' −ˢ.027 ΔT +19ˢ.344 Nadir 134° 57′ 12″.84 t 67.5
b − .183 at 23ʰ.1 Rate −ˢ.005 at 22ʰ 42ᵐ Equator 352 17 38 .45 B 25.94
a + .262 ρ − .060 T 67

OCTOBER 4, 1894. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
α Equulei . . .	21 10 16.208	− .155	+18.324	21 10 34.377	347 28 18.89	+ 30.70	38.76	+ 4 48 49.17	24.81
1 H. Draco. S. P.	21 41.40	+ 2.31	.311	9 22 2.02	254 6 25.63	− 86.03	38.76	+81 47 20.84	25.13
ε Pegasi	38 43.644	− .180	.291	21 39 1.755	342 53 36.05	+ 25.54	38.76	+ 9 23 37.17	25.74
161 . .	47 16.498	+ .106	.281	21 47 34.885	30 6 23.83	+178.68	38.76	−37 51 43.75	. . .
20 Pegasi	55 40.388	− .200	.271	21 55 58.459	339 40 14.09	+ 22.17	38.76	+12 37 2.50	24.87
24 Cephei	22 7 31.27	− 1.16	.258	22 7 48.37	280 28 40.37	− 33.05	38.76	+71 49 31.44	25.44
145 l. c.	13 53.15	+ 3.70	.250	10 14 15.10	257 5 59.50	− 76.39	38.76	+84 47 4.35	. . .
116 . .	19 36.979	− .133	.243	22 19 55.089	351 26 23.03	+ 35.59	38.76	+ 0 50 40.14	. . .
117 . .	24 47.609	− .068	.237	22 25 5.778	3 29 41.91	+ 54.41	38.76	−11 12 57.56	. . .
118 . .	30 10.36	− 1.45	.231	22 30 27.14	276 37 5.86	− 38.04	38.76	+75 41 10.94	. . .
λ Aquarii . . .	46 50.466	− .084	.211	22 47 8.593	0 25 9.45	+′ 48.85	38.76	− 8 8 19.54	25.22
α Pegasi	59 13.974	− .212	.197	22 59 31.959	337 38 51.12	+ 20.12	38.76	+14 38 27.52	25.64
119 . .	23 8 35.401	− .092	.186	23 8 53.495	358 53 46.82	+ 46.34	38.76	− 6 36 54.40	. . .
120 . .	14 2.274	− .939	.180	23 14 19.515	284 45 50.62	− 28.00	38.76	+67 32 16.14	. . .
κ Piscium	21 15.308	− .132	.171	23 21 33.347	351 36 10.03	+ 35.80	38.76	+ 0 40 52.93	24.34
122 . .	27 46.04	− 6.16	.164	23 27 58.04	265 34 51.63	− 56.06	38.76	+86 43 43.19	. . .
γ Cephei	34 47.51	− 1.60	.155	23 35 4.06	275 15 29.86	− 39.97	38.76	+77 2 48.87	24.37
124 . .	49 27.64	− 1.30	.139	23 49 44.48	278 28 39.66	− 35.62	38.76	+73 49 34.72	. . .
125 . .	56 16.929	− .093	.130	23 56 34.966	358 52 42.01	+ 46.39	38.76	− 6 35 49.64	. . .
4 H. Draco. S. P.	0 6 53.34	+ 1.56	.118	12 7 13.02	250 31 21.39	−100.28	38.76	+78 12 2.35	25.54
57 l. c.	13 34.27	+11.42	.110	12 14 3.80	260 35 43.84	− 67.13	38.76	+88 16 57.95	. . .
12 Ceti	24 23.293	− .104	.098	0 24 41.287	356 49 7.12	+ 43.21	38.76	− 4 32 11.57	25.28
4 . .	29 33.072	− .106	.091	0 29 51.057	356 27 7.56	+ 42.65	38.76	− 4 10 11.45	. . .
6 . .	42 34.897	− .155	.076	0 42 52.818	347 32 36.37	+ 30.84	38.76	+ 4 44 31.55	. . .
61 l. c.	47 53.54	+ 3.19	.070	12 48 14.80	256 18 2.72	− 78.98	38.76	+83 59 4.98	. . .
43 H. Cephei . .	54 18.01	− 4.69	.063	0 54 31.38	266 36 57.70	− 54.17	38.76	+85 41 35.23	25.24
ϑ Ceti	1 18 29.180	− .081	.035	1 18 47.134	1 0 14.16	+ 50.03	38.76	− 8 43 25.43	26.49
Gr. 2001 S. P. . .	23 5.61	+ 1.03	+18.029	13 23 24.67	245 16 6.15	−129.31	38.76	+72 56 18.08	24.82

c −ˢ.016 c' −ˢ.033 ΔT +18ˢ.199 Nadir 134° 57′ 13″.46 t 70.5
b − .266 at 22ʰ 57ᵐ Equator 352 17 38 .76 B 25.94
a + .191 ρ − .070 T 71

OCTOBER 5, 1894. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
α Equulei . . .	21 10 17.486	− .230	+17.156	21 10 34.412	347 28 20.71	+ 30.77	40.48	+ 4 48 49.00	25.02
1 H. Draco. S. P.	21 43.46	+1.58	.144	9 22 2.18	254 6 27.34	− 86.20	40.48	+81 47 20.66	25.22
ε Pegasi	38 44.844	− .251	.127	21 39 1.720	342 53 37.66	+ 25.58	40.48	+ 9 23 37.24	25.74
161 . .	47 17.848	− .039	.119	21 47 34.928	30 6 25.12	+179.00	40.48	−37 51 43.64	. . .
20 Pegasi	55 41.631	− .266	.110	21 55 58.475	339 40 15.90	+ 22.20	40.48	+12 37 2.38	25.08
24 Cephei . . .	22 7 32.17	− .95	.098	22 7 48.32	280 28 41.70	− 33.11	40.48	+71 49 31.89	25.30
145 l. c.	13 55.46	+2.52	.092	10 14 15.07	257 6 0.76	− 76.54	40.48	+84 47 3.74	. . .
116 . .	19 38.201	− .220	.086	22 19 55.067	351 26 24.34	+ 35.66	40.48	+ 0 50 40.48	. . .
117 . .	24 48.909	− .172	.081	22 25 5.818	3 29 43.57	+ 54.53	40.48	−11 12 57.62	. . .
118 . .	30 11.20	−1.16	.076	22 30 27.12	276 37 7.06	− 38.13	40.48	+75 41 11.55	. . .
λ Aquarii . . .	46 51.694	− .188	.059	22 47 8.565	0 25 10.93	+ 49.00	40.48	− 8 8 19.45	25.13
α Pegasi	59 15.210	− .279	.047	22 59 31.978	337 38 52.30	+ 20.18	40.48	+14 38 28.00	25.28
119 . .	23 8 36.622	− .196	.037	23 8 53.463	358 53 48.55	+ 46.47	40.48	− 6 36 54.54	. . .
120 . .	14 3.259	− .785	.032	23 14 19.506	284 45 52.17	− 28.07	40.48	+67 32 16.38	. . .
κ Piscium . . .	21 16.515	− .220	.025	23 21 33.320	351 36 11.90	+ 35.89	40.48	+ 0 40 52.69	24.60
122 . .	27 45.56	−4.36	.018	23 27 58.22	265 34 53.53	− 56.18	40.48	+86 43 43.13	. . .
γ Cephei	34 48.32	−1.24	.011	23 35 4.09	275 15 31.86	− 40.04	40.48	+77 2 48.66	24.97
124 . .	49 28.62	−1.02	+16.997	23 49 44.60	278 28 40.55	− 35.67	40.48	+73 49 35.60	. . .
125 . .	56 18.265	− .202	.990	23 56 35.053	358 52 43.64	+ 46.45	40.48	− 6 35 49.61	. . .
4 H. Draco. S. P.	0 6 55.09	+ .91	.979	12 7 12.98	250 31 22.26	−100.34	40.48	+78 12 1.44	25.02
57 l. c.	13 37.20	+7.52	.972	12 14 1.69	260 35 42.57	− 67.14	40.48	+88 16 54.95	. . .
12 Ceti	24 24.601	− .213	.962	0 24 41.350	356 49 8.62	+ 43.18	40.48	− 4 32 11.32	25.04
4 . .	29 34.401	− .215	.956	0 29 51.142	356 27 8.59	+ 42.62	40.48	− 4 10 10.73	. . .
6 . .	42 36.208	− .248	.943	0 42 52.903	347 32 38.07	+ 30.80	40.48	+ 4 44 31.61	. . .
61 l. c.	47 56.00	+1.94	.938	12 48 14.88	256 18 3.68	− 78.85	40.48	+83 59 4.35	. . .
43 H. Cephei . .	54 17.69	−3.22	.932	0 54 31.40	266 36 58.91	− 54.06	40.48	+85 41 35.63	25.24
ϑ Ceti	1 18 30.394	− .204	.907	1 18 47.097	1 0 15.92	+ 49.90	40.48	− 8 43 25.34	26.39
Gr. 2001 S. P. . .	23 7.21	+ .52	+16.903	13 23 24.63	245 16 7.85	−128.98	40.48	+72 56 18.39	25.52

c −ˢ.003 c' −ˢ.020 ΔT +17ˢ.049 Nadir 134° 57′ 15″.20 t 66.4
b − .294 at 22ʰ 57ᵐ Equator 352 17 40 .48 B 25.74
a + .049 at 23ʰ.5 Rate −ˢ.01 ρ − .060 T 67

OCTOBER 9, 1894. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
α Equulei . . .	21 10 21.286	− .286	+13.342	21 10 34.342	347 28 21.12	+ 31.16	41.45	+ 4 48 49.17	25.28
1 H. Draco. S. P.	21 48.79	+ .88	.335	9 22 3.00	254 6 28.03	− 87.31	41.45	+81 47 19.27	25.22
ε Pegasi	38 48.666	− .298	.323	21 39 1.691	342 53 38.09	+ 25.91	41.45	+ 9 23 37.45	26.06
161 . .	47 21.705	− .164	.317	21 47 34.858	30 6 24.46	+181.34	41.45	−37 51 44.35	. . .
20 Pegasi	55 45.378	− .306	.311	21 55 58.383	339 40 16.28	+ 22.49	41.45	+12 37 2.68	25.38
24 Cephei	22 7 35.57	− .76	.304	22 7 48.11	280 28 41.83	− 33.53	41.45	+71 49 33.15	25.51
145 l. c.	14 1.06	+1.53	.300	10 14 15.89	257 6 1.54	− 77.49	41.45	+84 47 2.60	. . .
116 . .	19 42.022	− .276	.296	22 19 55.042	351 26 25.44	+ 36.10	41.45	+ 0 50 39.91	. . .
117 . .	24 52.716	− .244	.292	22 25 5.764	3 29 44.39	+ 55.19	41.45	−11 12 58.13	. . .
118 . .	30 14.48	− .90	.289	22 30 26.87	276 37 7.18	− 38.58	41.45	+75 41 12.85	. . .
λ Aquarii	46 55.566	− .253	.278	22 47 8.591	0 25 11.37	+ 49.55	41.45	− 8 8 19.47	25.41
α Pegasi	59 19.010	− .313	.269	22 59 31.966	337 38 53.17	+ 20.40	41.45	+14 38 27.88	26.15
119 . .	23 8 40.479	− .257	.263	23 8 53.485	358 53 48.96	+ 46.98	41.45	− 6 36 54.49	. . .
120 . .	14 6.788	− .652	.260	23 14 19.396	284 45 51.28	− 28.39	41.45	+67 32 18.56	. . .
κ Piscium	21 20.393	− .275	.255	23 21 33.373	351 36 12.85	+ 36.30	41.45	+ 0 40 52.30	25.44
122 . .	27 47.68	−3.10	.251	23 27 57.83	265 34 53.72	− 56.82	41.45	+86 43 44.55	. . .
γ Cephei	34 51.73	− .97	.246	23 35 4.01	275 15 31.04	− 40.51	41.45	+77 2 50.92	24.55
124 . .	49 32.15	− .81	.236	23 49 44.58	278 28 40.25	− 36.09	41.45	+73 49 37.29	. . .
125 . .	56 22.037	− .257	.230	23 56 35.010	358 52 44.31	+ 47.00	41.45	− 6 35 49.86	. . .
4 H. Draco. S. P.	0 6 59.39	+ .52	.225	12 7 13.13	250 31 22.47	−101.59	41.45	+78 11 59.43	24.98
57 l. c.	13 44.30	+5.16	.220	12 14 2.68	260 35 43.36	− 67.98	41.45	+88 16 53.93	. . .
12 Ceti	24 28.401	− .262	.213	0 24 41.352	356 49 9.54	+ 43.74	41.45	− 4 32 11.83	25.91
4 . .	29 38.193	− .263	.209	0 29 51.139	356 27 9.61	+ 43.18	41.45	− 4 10 11.34	. . .
6 . .	42 40.015	− .286	.200	0 42 52.929	347 32 36.99	+ 31.22	41.45	+ 4 44 33.24	. . .
61 l. c.	48 0.44	+1.28	.197	12 48 14.92	256 18 4.07	− 79.94	41.45	+83 59 2.68	. . .
43 H. Cephei . .	54 20.43	−2.41	.193	0 54 31.21	266 36 59.22	− 54.82	41.45	+85 41 37.05	25.83
ϑ Ceti	1 18 34.194	− .251	.176	1 18 47.119	1 0 15.22	+ 50.61	41.45	− 8 43 24.38	25.70
Gr. 2001 S. P. .	23 11.00	+ .27	+13.174	13 23 24.44	245 16 8.09	−130.82	41.45	+72 56 15.82	25.04

c ˢ.000 c' −ˢ.017 ΔT +13ˢ.271 Nadir 134° 57′ 15″.78 t 63.0
b − .292 at 22ʰ 57ᵐ Equator 352 17 41 .45 B 25.89
a − .040 ρ − .040 T 64

OCTOBER 10, 1894. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
α Equulei . . .	21 10 22.222	−.395	+12.483	21 10 34.310	347 28 22.77	+ 31.43	42.58	+ 4 48 48.38	25.84
1 H. Draco. S. P.	21 50.37	+.14	.475	9 22 2.98	254 6 29.68	− 88.05	42.58	+81 47 19.05	25.05
ε Pegasi	38 49.552	−.400	.464	21 39 1.616	342 53 39.11	+ 26.12	42.58	+ 9 23 37.35	25.94
161 . .	47 22.698	−.351	.459	21 47 34.806	30 6 24.36	+182.81	42.58	− 37 51 44.59	. . .
24 Cephei . . .	22 7 36.17	−.59	.445	22 7 48.02	280 28 43.18	− 33.80	42.58	+71 49 33.20	25.49
γ Aquarii . . .	16 2.058	−.389	.439	22 16 14.108	354 12 2.76	+ 40.20	42.58	− 1 55 0.38	25.46
9 H. Draco. S. P.	25 54.83	−.07	.433	10 26 7.19	248 34 45.18	−111.91	42.58	+76 15 10.69	25.09
λ Aquarii . . .	46 56.566	−.382	.419	22 47 8.603	0 25 12.17	+ 50.00	42.58	− 8 8 19.59	25.26
α Pegasi	59 19.974	−.406	.411	22 59 31.979	337 38 54.15	+ 20.59	42.58	+14 38 27.84	26.04
163 . .	23 12 58.229	−.356	.401	23 13 10.274	25 21 45.67	+137.15	42.58	− 33 6 20.24	. . .
121 . .	22 26.793	−.395	.395	23 22 38.793	346 29 1.77	+ 30.21	42.58	+ 5 48 10.60	. . .
164 . .	27 9.592	−.350	.392	23 27 21.634	30 38 35.10	+189.79	42.58	− 38 24 2.31	. . .
123 . .	38 34.040	−.372	.384	23 38 46.052	11 8 4.80	+ 73.37	42.58	− 18 51 35.59	. . .
ω Piscium . . .	53 43.493	−.396	.374	23 53 55.471	346 0 14.53	+ 29.67	42.58	+ 6 16 58.38	25.69
127 . .	59 46.222	−.383	.370	23 59 58.209	358 34 35.26	+ 46.94	42.58	− 6 17 39.62	. . .
4 H. Draco. S. P.	0 7 0.83	−.02	.365	12 7 13.17	250 31 25.22	−102.52	42.58	+78 12 0.12	25.83
1 . .	12 38.689	−.435	.361	0 12 50.615	316 5 25.36	+ 0.98	42.58	+36 12 16.24	. . .
2 . .	19 49.745	−.391	.357	0 20 1.711	350 55 33.70	+ 35.77	42.58	+ 1 21 33.11	. . .
5 . .	31 46.101	−.365	.349	0 31 58.085	17 36 49.13	+ 94.98	42.58	− 25 20 41.53	. . .
21 Cassiop. . . .	38 32.54	−.63	.344	0 38 44.25	277 53 27.09	− 37.25	42.58	+74 24 52.74	25.21
7 . .	43 49.659	−.445	.341	0 44 1.555	311 47 15.65	− 2.73	42.58	+40 30 29.66	. . .
129 . .	53 21.990	−.360	.334	0 53 33.964	22 11 12.94	+116.88	42.58	− 29 55 27.24	. . .
8 . .	1 1 5.488	−.481	.329	1 1 17.336	297 53 35.34	− 15.16	42.58	+54 24 22.40	. . .
9 . .	12 11.472	−.393	.322	1 12 23.401	349 13 21.13	+ 33.66	42.58	+ 3 3 47.79	. . .
9 Ceti	18 35.194	−.381	.317	1 18 47.130	1 0 16.22	+ 51.23	42.58	− 8 43 24.87	25.93
10 . .	23 14.052	−.575	.314	1 23 25.791	282 34 45.67	− 31.34	42.58	+69 43 28.25	. . .
11 . .	30 26.366	−.445	.310	1 30 38.231	311 24 52.81	− 3.06	42.58	+40 52 52.83	. . .
ξ Piscium . . .	47 55.701	−.393	.298	1 48 7.606	349 36 51.53	+ 34.20	42.58	+ 2 40 16.85	24.85
50 Cassiop. . . .	54 17.33	−.60	.294	1 54 29.02	280 23 29.43	− 34.08	42.58	+71 54 47.23	24.88
4 Urs. Min. S. P.	2 8 59.80	−.02	.284	14 9 12.06	250 21 57.11	−103.70	42.58	+78 2 30.83	24.18
o Ceti, 8½ mag.	13 51.143	−.386	.281	2 14 3.038	355 44 6.80	+ 42.68	42.58	− 3 27 6.90	24.66
ξ 2 Ceti	22 23.016	−.398	+12.275	2 22 34.893	344 17 44.35	+ 27.83	42.58	+ 7 59 30.40	25.16

c ˢ.000	*c′* −ˢ.017	ΔT +12ˢ.377	Nadir 134° 57′ 17″.10	*t* 57.7
b − .331		at 23ʰ 51ᵐ	Equator 352 17 42 .58	B 25.88
a − .181		*p* − .040		T 58

OCTOBER 12, 1894. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
24 Cephei	22 7 38.06	−.74	+10.691	22 7 48.01	280 28 41.60	− 33.82	41.80	+71 49 34.02	25.29
γ Aquarii . . .	16 3.729	−.310	.685	22 16 14.104	354 12 1.95	+ 40.23	41.78	− 1 55 0.40	25.57
9 H. Draco. S. P.	25 56.44	+.29	.679	10 26 7.40	248 34 44.17	−111.99	41.77	+76 15 10.41	25.54
λ Aquarii	46 58.166	−.298	.665	22 47 8.533	0 25 11.25	+ 50.05	41.73	− 8 8 19.57	25.26
α Pegasi	59 21.610	−.350	.656	22 59 31.916	337 38 52.98	+ 20.61	41.71	+14 38 28.12	26.02
163 . .	23 12 59.772	−.238	.647	23 13 10.181	25 21 45.76	+137.24	41.69	−33 6 21.31	. . .
121 . .	22 28.472	−.331	.641	23 22 38.782	346 29 1.15	+ 30.23	41.67	+ 5 48 10.29	. . .
164 . .	27 11.206	−.223	.638	23 27 21.621	30 38 35.07	+189.89	41.66	−38 24 3.30	. . .
123 . .	38 35.690	−.278	.630	23 38 46.042	11 8 4.46	+ 73.39	41.65	−18 51 36.20	. . .
ω Piscium . . .	53 45.208	−.333	.620	23 53 55.495	346 0 13.52	+ 29.67	41.62	+ 6 16 58.43	25.81
127 . .	59 47.851	−.307	.616	23 59 58.160	358 34 34.91	+ 46.94	41.61	− 6 17 40.24	. . .
4 H. Draco. S. P.	0 7 2.31	+.35	.611	12 7 13.27	250 31 23.01	−102.53	41.60	+78 11 58.88	25.44
1 . .	12 40.453	−.413	.607	0 12 50.647	316 5 24.40	+ 0.98	41.59	+36 12 16.21	. . .
2 . .	19 51.343	−.324	.603	0 20 1.622	350 55 32.87	+ 35.77	41.58	+ 1 21 32.94	. . .
5 . .	31 47.730	−.266	.595	0 31 58.059	17 36 48.66	+ 94.98	41.56	−25 20 42.08	. . .
21 Cassiop. . . .	38 34.44	−.79	.590	0 38 44.24	277 53 25.61	− 37.24	41.55	+74 24 53.18	25.58
7 . .	43 51.395	−.429	.587	0 44 1.553	311 47 14.24	− 2.73	41.54	+40 30 30.03	. . .
129 . .	53 23.590	−.256	.580	0 53 33.914	22 11 12.80	+116.79	41.52	−29 55 28.07	. . .
8 . .	1 1 7.203	−.499	.575	1 1 17.279	297 53 34.32	− 15.14	41.51	+54 24 22.33	. . .
9 . .	12 13.136	−.330	.568	1 12 23.374	349 13 20.50	+ 33.61	41.49	+ 3 3 47.38	. . .
9 Ceti	18 36.902	−.305	.563	1 18 47.160	1 0 15.52	+ 51.13	41.48	− 8 43 25.17	26.22
10 . .	23 15.867	−.668	.560	1 23 25.759	282 34 43.88	− 31.27	41.47	+69 43 28.86	. . .
11 . .	30 28.098	−.431	.556	1 30 38.223	311 24 51.48	− 3.05	41.46	+40 52 53.03	. . .
ξ Piscium . . .	47 57.365	−.331	.544	1 48 7.578	349 36 50.79	+ 34.08	41.43	+ 2 40 16.56	25.26
50 Cassiop. . . .	54 19.27	−.70	.540	1 54 29.11	280 23 28.01	· 33.95	41.42	+71 54 47.36	25.56
4 Urs. Min. S. P.	2 9 1.22	+.29	.530	14 9 12.04	250 21 55.65	−103.20	41.40	+78 2 31.05	25.25
o Ceti, 8¼ mag.	13 52.851	−.320	.527	2 14 3.058	355 44 6.46	+ 42.48	41.39	− 3 27 7.55	25.37
ξ 2 Ceti	22 24.723	−.343	+10.521	2 22 34.901	344 17 43.52	+ 27.69	41.37	+ 7 59 30.16	25.59

c +s.003 c' −s.014 ΔT +10s.598 Nadir 134° 57′ 15″.95 at 0h.2 t 59.7
b −.318 at 0h 27m Equator 352 17 41 .56 at 0 .5 B 25.96
a −.089 at 0h.3 Rate −s.005 ρ −.040 Rate −0″.10 hourly T 61

OCTOBER 16, 1894. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
24 Cephei . . .	22 7 41.16	−.79	+7.387	22 7 47.76	280 28 38.96	− 33.31	40.78	+71 49 35.13	25.15
γ Aquarii . . .	16 6.908	−.284	.381	22 16 14.005	354 12 1.05	+ 39.63	40.78	− 1 54 59.90	25.01
9 H. Draco. S. P.	25 59.79	+.43	.375	10 26 7.60	248 34 40.81	−110.35	40.78	+76 15 9.68	25.96
λ Aquarii . . .	47 1.416	−.268	.361	22 47 8.509	0 25 11.66	+ 49.33	40.78	− 8 8 20.21	25.65
α Pegasi . . .	59 24.917	−.330	.352	22 59 31.939	337 38 52.28	+ 20.32	40.78	+14 38 28.18	26.19
163 . .	23 13 3.007	−.195	.343	23 13 10.155	25 21 47.25	+135.31	40.78	−33 6 21.78	. . .
121 . .	22 31.743	−.304	.337	23 22 38.776	346 29 0.12	+ 29.81	40.78	+ 5 48 10.85	. . .
164 . .	27 14.413	−.176	.334	23 27 21.571	30 38 37.09	+187.27	40.78	−38 24 3.58	. . .
123 . .	38 38.890	−.239	.326	23 38 45.977	11 8 5.37	+ 72.39	40.78	−18 51 36.98	. . .
ω Piscium . . .	53 48.458	−.306	.316	23 53 55.468	346 0 12.73	+ 29.27	40.78	+ 6 16 58.78	25.50
127 . .	59 51.093	−.273	.312	23 59 58.132	358 34 34.18	+ 46.30	40.78	− 6 17 39.70	. . .
4 H. Draco. S. P.	0 7 5.37	+.55	.307	12 7 13.23	250 31 19.72	−101.11	40.78	+78 11 57.83	25.80
1 . .	12 43.782	−.404	.303	0 12 50.681	316 5 22.26	+ 0.96	40.78	+36 12 17.56	. . .
2 . .	19 54.629	−.293	.299	0 20 1.635	350 55 32.48	+ 35.27	40.78	+ 1 21 33.03	. . .
5 . .	31 50.973	−.220	.291	0 31 58.044	17 36 49.67	+ 93.64	40.78	−25 20 42.53	. . .
21 Cassiop. . . .	38 37.82	−.88	.286	0 38 44.23	277 53 22.53	− 36.71	40.78	+74 24 54.96	25.12
7 . .	43 54.716	−.423	.283	0 44 1.576	311 47 12.05	− 2.69	40.78	+40 30 31.42	. . .
129 . .	53 26.883	−.206	.276	0 53 33.953	22 11 14.73	+115.13	40.78	−29 55 29.08	. . .
8 . .	1 1 10.617	−.513	.271	1 1 17.375	297 53 31.68	− 14.93	40.78	+54 24 24.03	. . .
9 . .	12 16.443	−.298	.264	1 12 23.409	349 13 20.63	+ 33.13	40.78	+ 3 3 47.02	. . .
9 Ceti	18 40.194	−.266	.260	1 18 47.188	1 0 16.07	+ 50.41	40.78	− 8 43 25.70	26.33
10 . .	23 19.337	−.732	.257	1 23 25.862	282 34 41.97	− 30.84	40.78	+69 43 29.65	. . .
11 . .	30 31.516	−.425	.251	1 30 38.342	311 24 49.92	− 3.01	40.78	+40 52 53.87	. . .
ξ Piscium . . .	48 0.715	−.296	.240	1 48 7.659	349 36 50.54	+ 33.64	40.78	+ 2 40 16.60	25.08
50 Cassiop. . . .	54 22.66	−.79	.236	1 54 29.11	280 23 25.72	− 33.53	40.78	+71 54 48.59	25.58
4 Urs. Min. S. P.	2 9 4.15	+.54	.226	14 9 11.92	250 21 52.83	−102.01	40.78	+78 2 30.04	25.57
o Ceti, 8¼ mag.	13 56.115	−.280	.223	2 14 3.058	355 44 6.47	+ 41.99	40.78	− 3 27 7.68	25.19
ξ 2 Ceti	22 28.016	−.310	+7.217	2 22 34.923	344 17 43.46	+ 27.38	40.78	+ 7 59 29.94	25.73

c −s.003 c' −s.020 ΔT +7s.294 Nadir 134° 57′ 15″.20 t 61.7
b −.305 at 0h 27m Equator 352 17 40 .78 B 25.71
a −.044 ρ −.040 T 64

OCTOBER 22, 1894. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
24 Cephei . . .	22 7 46.42	− .90	+1.935	22 7 47.45	280 28 38.21	− 34.18	40.64	+71 49 36.61	25.51
γ Aquarii . . .	16 12.072	+ .013	.929	22 16 14.014	354 12 0.17	+ 40.66	40.64	− 1 55 0.19	25.71
9 H. Draco. S. P.	26 4.95	+1.24	.923	10 26 8.11	248 34 41.12	−113.20	40.64	+76 15 7.28	25.80
λ Aquarii . . .	47 6.523	+ .043	.909	22 47 8.475	0 25 10.53	+ 50.58	40.64	− 8 8 20.47	26.09
α Pegasi	59 30.010	− .071	.900	22 59 31.839	337 38 51.01	+ 20.83	40.64	+14 38 28.80	26.39
163 . .	23 13 8.065	+ .183	.891	23 13 10.139	25 21 44.80	+138.71	40.64	−33 6 22.87	. . .
121 . .	22 36.893	− .025	.885	23 22 38.753	346 28 59.43	+ 30.55	40.64	+ 5 48 10.66	. . .
164 .	27 19.406	+ .220	.882	23 27 21.508	30 38 34.54	+191.93	40.64	−38 24 5.83	. . .
123 . .	38 44.083	+ .097	.874	23 38 46.054	11 8 4.04	+ 74.16	40.64	−18 51 37.56	. . .
ω Piscium . . .	53 53.693	− .028	.864	23 53 55.529	346 0 12.11	+ 29.98	40.64	+ 6 16 58.55	26.37
127 . .	59 56.308	+ .034	.860	23 59 58.202	358 34 33.63	+ 47.44	40.64	− 6 17 40.43	. . .
4 H. Draco. S. P.	0 7 10.50	+1.44	.855	12 7 13.80	250 31 18.65	−103.63	40.64	+78 11 54.38	25.09
1 . .	12 49.075	− .205	.851	0 12 50.721	316 5 21.17	+ 0.99	40.64	+36 12 18.48	. . .
2 . .	19 59.908	− .004	.847	0 20 1.751	350 55 31.22	+ 36.16	40.64	+ 1 21 33.26	. . .
5 . .	31 56.123	+ .134	.839	0 31 58.096	17 36 47.48	+ 96.01	40.64	−25 20 42.85	. . .
21 Cassiop. . . .	38 43.37	−1.05	.834	0 38 44.15	277 53 21.04	− 37.64	40.64	+74 24 57.24	25.44
7 . .	44 0.066	− .241	.831	0 44 1.656	311 47 10.86	− 2.76	40.64	+40 30 32.54	. . .
129 . .	53 31.990	+ .162	.824	0 53 33.976	22 11 12.40	+118.10	40.64	−29 55 29.86	. . .
8 . .	1 1 15.988	− .401	.819	1 1 17.406	297 53 29.81	− 15.31	40.64	+54 24 26.14	. . .
9 . .	12 21.715	− .012	.812	1 12 23.515	349 13 18.67	+ 33.99	40.64	+ 3 3 47.98	. . .
9 Ceti	18 43.359	+ .046	.807	1 18 47.212	1 0 14.63	+ 51.73	40.64	− 8 43 25.72	26.41
10 . .	23 24.887	− .788	.804	1 23 25.903	282 34 39.57	− 31.65	40.64	+69 43 32.72	. . .
11 . .	30 36.838	− .245	.799	1 30 38.392	311 24 47.84	− 3.09	40.64	+40 52 55.89	. . .
ξ Piscium . . .	48 5.958	− .010	.788	1 48 7.736	349 36 49.33	+ 34.52	40.64	+ 2 40 16.79	25.34
50 Cassiop. . . .	54 28.53	− .90	.784	1 54 29.41	280 23 23.56	− 34.40	40.64	+71 54 51.48	25.29
4 Urs. Min. S. P.	2 9 8.58	+1.42	.774	14 9 11.77	250 21 51.97	−104.65	40.64	+78 2 26.68	25.03
o Ceti, 9 mag. .	14 1.386	+ .020	.771	2 14 3.177	355 44 5.09	+ 43.07	40.64	− 3 27 7.52	25.23
ξ 2 Ceti	22 33.330	− .037	+1.765	2 22 35.058	344 17 41.95	+ 28.07	40.64	+ 7 59 30.62	25.65

c ˢ.000 c' −ˢ.017 ΔT +1ˢ.842 Nadir 134° 57′ 14″.74 t 51.3
b − .154 at 0ʰ 27ᵐ Equator 352 17 40 .64 B 25.81
a + .235 ρ − .040 T 52

OCTOBER 25, 1894. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
π Cephei . . .	23 4 36.53	− 1.34	−1.170	23 4 34.02	277 28 56.66	− 37.79	40.30	+74 49 21.43	24.87
λ Draco. S. P.	25 8.70	+ .89	.190	11 25 8.40	242 14 49.43	−156.58	40.30	+69 54 32.55	24.80
ι Piscium . . .	34 34.543	− .100	.200	23 34 33.243	347 13 40.43	+ 31.14	40.30	+ 5 3 28.73	25.02
ω Piscium . . .	53 56.801	− .107	.219	23 53 55.475	346 0 11.72	+ 29.69	40.30	+ 6 16 58.89	25.43
126 . .	58 23.512	+ .036	.223	23 58 22.325	10 11 44.68	+ 70.91	40.30	−17 55 15.29	. . .
γ Pegasi	0 7 51.367	− .157	.233	0 7 49.977	337 41 15.32	+ 20.66	40.30	+14 36 4.32	25.74
$\varkappa$ Draco. S. P.	28 58.12	+ .92	.254	12 28 57.79	242 42 10.61	−152.43	40.30	+70 21 57.88	25.55
ε Piscium . . .	57 31.466	− .114	.283	0 57 30.069	344 57 35.73	+ 28.51	40.30	+ 7 19 36.06	24.79
α Urs. Min. . .	1 21 10.32	−15.97	.306	1 20 53.04	263 33 44.72	− 61.75	40.30	+88 44 57.33	25.27
12 . .	31 33.809	− .139	.317	1 31 32.353	340 40 54.19	+ 23.81	40.30	+11 36 22.30	. . .
ξ Piscium . . .	48 9.122	− .087	.333	1 48 7.702	349 36 49.56	+ 34.16	40.30	+ 2 40 16.58	24.85
13 . .	2 7 28.023	− .119	.352	2 7 26.552	343 55 50.30	+ 27.39	40.30	+ 8 21 22.61	. . .
o Ceti, 8¾ mag.	14 4.658	− .050	.359	2 14 3.249	355 44 6.39	+ 42.63	40.30	− 3 27 8.72	25.62
69 l. c.	27 41.37	+ 1.35	.373	14 27 41.35	248 29 18.77	−112.84	40.30	+76 9 45.63	. . .
132 . .	44 44.384	+ .142	.390	2 44 43.136	25 6 4.98	+135.69	40.30	−32 50 40.37	. . .
16 . .	53 14.440	− .199	.398	2 53 12.843	331 22 4.51	+ 14.56	40.30	+20 55 21.23	. . .
133 . .	57 48.085	+ .077	.403	2 57 46.759	16 18 10.49	+ 90.09	40.30	−24 2 0.28	. . .
73 l. c.	3 10 41.21	+ 8.35	.415	15 10 48.14	259 57 1.99	− 70.40	40.30	+87 38 11.29	. . .
o Tauri	19 11.737	− .121	.424	3 19 10.192	343 37 30.17	+ 27.00	40.30	+ 8 39 43.13	25.69
ε Eridani . . .	28 1.223	− .014	.433	3 27 59.776	2 5 25.36	+ 53.14	40.30	− 9 48 38.20	25.50
5 H. Camelop. .	39 20.25	− 1.06	.444	3 39 17.75	281 17 42.19	− 32.87	40.30	+71 0 30.98	25.46
ζ Urs. Min. S. P.	47 44.48	+ 1.60	−1.453	15 47 44.63	250 26 29.60	−103.07	40.30	+78 7 6.23	26.18

c +ˢ.003 c' −ˢ.014 ΔT −1ˢ.313 Nadir 134° 57′ 14″.97 t 57.9
b − .247 at 1ʰ 28ᵐ Equator 352 17 40 .30 B 25.91
a + .230 ρ − .060 T 59

OCTOBER 29, 1894. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
π Cephei	23 4 40.64	− 1.26	− 5.454	23 4 33.93	277 28 57.08	− 38.13	41.33	+74 49 22.38	25.07
λ Draco. S. P.	25 13.39	+ .69	.471	11 25 8.61	242 14 49.27	−158.03	41.33	+69 54 29.91	23.56
ι Piscium	34 38.836	− .195	.479	23 34 33.162	347 13 41.36	+ 31.43	41.33	+ 5 3 28.54	25.29
ω Piscium	54 1.108	− .200	.495	23 53 55.413	346 0 12.35	+ 29.97	41.33	+ 6 16 59.01	25.43
126	58 27.840	− .082	.498	23 58 22.260	10 11 45.27	+ 71.60	41.33	− 17 55 15.54	. . .
γ Pegasi	0 7 55.731	− .243	.507	0 7 49.981	337 41 15.92	+ 20.86	41.33	+14 36 4.55	25.54
κ Draco. S. P.	29 2.69	+ .70	.525	12 28 57.87	242 42 10.30	−153.80	41.33	+70 21 55.17	24.39
ε Piscium	57 35.852	− .205	.548	0 57 30.099	344 57 37.54	+ 28.73	41.33	+ 7 19 35.06	25.89
α Urs. Min.	1 21 12.88	−14.01	.568	1 20 53.30	263 33 44.68	− 62.20	41.33	+88 44 58.85	25.31
12	31 38.230	− .228	.577	1 31 32.425	340 40 54.95	+ 23.97	41.33	+11 36 22.41	. . .
ξ Piscium	48 13.522	− .184	.590	1 48 7.748	349 36 50.87	+ 34.38	41.33	+ 2 40 16.08	25.29
13	2 7 32.437	− .210	.606	2 7 26.621	343 55 50.57	+ 27.54	41.33	+ 8 21 23.22	. . .
ο Ceti, 8½ mag.	14 9.001	− .154	.612	2 14 3.235	355 44 7.00	+ 42.88	41.33	− 3 27 8.55	25.22
69 l. c.	27 45.84	+ 1.09	.623	14 27 41.31	248 29 18.32	−113.52	41.33	+76 9 43.47	. . .
132	44 48.763	+ .002	.637	2 44 43.128	25 6 5.40	+136.53	41.33	− 32 50 40.60	. . .
16	53 18.883	− .278	.644	2 53 12.961	331 22 5.18	+ 14.65	41.33	+20 55 21.50	. . .
133	57 52.507	− .051	.648	2 57 46.808	16 18 11.01	+ 90.67	41.33	− 24 2 0.35	. . .
73 l. c.	3 10 45.32	+ 7.19	.659	15 10 46.85	259 57 1.40	− 70.87	41.33	+87 38 9.20	. . .
ο Tauri	19 16.137	− .213	.666	3 19 10.258	343 37 31.24	+ 27.18	41.33	+ 8 39 42.91	25.92
ε Eridani	28 5.594	− .123	.673	3 27 59.798	2 5 26.24	+ 53.51	41.33	− 9 48 38.42	25.28
5 H. Camelop.	39 24.72	− 1.02	.683	3 39 18.02	281 17 41.47	− 33.09	41.33	+71 0 32.95	24.68
ζ Urs. Min. S. P.	47 48.86	+ 1.30	− 5.690	15 47 44.47	250 26 29.02	−103.78	41.33	+78 7 3.91	25.23

c −ˢ.010 c' −ˢ.027 ΔT −5ˢ.571 Nadir 134° 57′ 15″.85 t 55.3
b − .280 at 1ʰ 26ᵐ Equator 352 17 41 .33 B 25.96
a + .132 ρ − .050 T 56

NOVEMBER 5, 1894. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
π Cephei	23 4 47.44	− 1.16	−12.893	23 4 33.39	277 28 55.45	− 37.78	42.30	+74 49 24.63	24.75
λ Draco. S. P.	25 21.57	+ .38	.907	11 25 9.04	242 14 46.20	−156.42	42.30	+69 54 27.48	23.57
ι Piscium	34 46.422	− .314	.913	23 34 33.195	347 13 42.24	+ 31.10	42.30	+ 5 3 28.96	24.97
ω Piscium	54 8.679	− .320	.926	23 53 55.433	346 0 13.59	+ 29.64	42.30	+ 6 16 59.07	25.56
126	58 35.455	− .230	.929	23 58 22.296	10 11 48.08	+ 70.77	42.30	− 17 55 16.55	. . .
γ Pegasi	0 8 3.245	− .354	.935	0 7 49.956	337 41 17.04	+ 20.62	42.30	+14 36 4.64	26.26
κ Draco. S. P.	29 10.83	+ .36	.949	12 28 58.24	242 42 7.34	−151.94	42.20	+70 21 53.10	25.12
ε Piscium	57 43.344	− .326	.968	0 57 30.050	344 57 38.55	+ 28.37	42.30	+ 7 19 35.38	25.85
α Urs. Min	1 21 14.78	−10.40	.984	1 20 51.40	263 33 42.53	− 61.38	42.30	+88 45 1.15	25.85
12	31 45.780	− .348	.991	1 31 32.441	340 40 55.72	+ 23.64	42.30	+11 36 22.94	. . .
ξ Piscium	48 21.093	− .319	−13.002	1 48 7.772	349 36 52.24	+ 33.87	42.30	+ 2 40 16.19	25.15
13	2 7 39.959	− .339	.015	2 7 26.605	343 55 52.42	+ 27.12	42.30	+ 8 21 22.76	. . .
ο Ceti, 8½ mag	14 16.658	− .300	.019	2 14 3.339	355 44 8.84	+ 42.22	42.30	− 3 27 8.76	25.13
69 l. c.	27 53.93	+ .56	.029	14 27 41.46	248 29 15.93	−111.18	42.30	+76 9 41.85	. . .
132	44 56.477	− .195	.040	2 44 43.242	25 6 10.40	+134.45	42.30	− 32 50 42.55	. . .
16	53 26.412	− .389	.045	2 53 12.978	331 22 5.63	+ 14.43	42.30	+20 55 22.24	. . .
133	58 0.221	− .234	.049	2 57 46.938	16 18 15.29	+ 89.29	42.30	− 24 2 2.28	. . .
73 l. c.	3 10 54.30	+ 4.73	.057	15 10 45.97	259 56 59.43	− 69.80	42.30	+87 38 7.33	. . .
ο Tauri	19 23.794	− .346	.063	3 19 10.385	343 37 32.71	+ 26.77	42.30	+ 8 39 42.82	26.11
ε Eridani	28 13.237	− .287	.069	3 27 59.881	2 5 28.97	+ 52.70	42.30	− 9 48 39.37	25.47
5 H. Camelop.	39 32.31	− .89	.077	3 39 18.34	281 17 40.87	− 32.59	42.30	+71 0 34.02	25.90
ζ Urs. Min. S. P.	47 56.50	+ .67	−13.082	15 47 44.09	250 26 26.45	−102.19	42.30	+78 7 1.96	26.04

c −ˢ.003 c' −ˢ.020 ΔT −12ˢ.988 Nadir 134° 57′ 16″.74 t 63.5
b − .349 at 1ʰ 26ᵐ Equator 352 17 42 .30 B 26.05
a − .013 at 1ʰ.3 Rate −ˢ.01 ρ − .040 T 63

NOVEMBER 6, 1894. CIR. W, WT. 2, OBSR. T.

Star.	Transit.	Corr.	⊿T	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
π Cephei . . .	23 4 48.28	−1.05	−13.828	23 4 33.40	277 28 56.01	− 37.33	42.23	+74 49 23.55	25.90
λ Draco. S. P.	25 22.81	+ .18	.842	11 25 9.15	242 14 45.39	−154.85	42.23	+69 54 28.31	24.56
ι Piscium . . .	34 47.372	− .381	.848	23 34 33.143	347 13 43.09	+ 30.82	42.23	+ 5 3 28.32	25.45
ω Piscium . .	54 9.658	− .385	.861	23 53 55.412	346 0 14.82	+ 29.42	42.23	+ 6 16 57.99	26.50
126 . .	58 36.405	− .310	.864	23 58 22.231	10 11 49.24	+ 70.31	42.23	−17 55 17.32	. . .
γ Pegasi . . .	0 8 4.253	− .412	.870	0 7 49.971	337 41 17.04	+ 20.50	42.23	+14 36 4.69	26.11
κ Draco. S. P.	29 11.99	+ .18	.884	12 28 58.29	242 42 7.78	−151.34	42.23	+70 21 54.21	26.46
ε Piscium . .	57 44.373	− .388	.903	0 57 30.082	344 57 38.64	+ 28.25	42.23	+ 7 19 35.34	25.76
α Urs. Min. . .	1 21 15.14	−9.10	.919	1 20 52.12	263 33 42.22	− 61.18	42.23	+88 45 1.19	26.06
12 . .	31 46.730	− .401	.926	1 31 32.403	340 40 56.13	+ 23.58	42.23	+11 36 22.52	. . .
ξ Piscium . . .	48 22.129	− .375	.937	1 48 7.817	349 36 51.82	+ 33.82	42.23	+ 2 40 16.59	24.61
13 . .	2 7 41.016	− .392	.950	2 7 26.674	343 55 52.52	+ 27.09	42.23	+ 8 21 22.62	. . .
ο Ceti, 8¼ mag.	14 17.615	− .356	.954	2 14 3.305	355 44 9.57	+ 42.17	42.23	− 3 27 9.51	25.69
69 l. c.	27 54.91	+ .43	.964	14 27 41.38	248 29 15.14	−111.62	42.23	+76 9 41.29	. . .
132 . .	44 57.448	− .257	.975	2 44 43.216	25 6 10.96	+134.22	42.23	− 32 50 42.95	. . .
16 . .	53 27.440	− .434	.980	2 53 13.026	331 22 5.66	+ 14.39	42.23	+20 55 22.18	. . .
133 . .	58 1.249	− .290	.983	2 57 46.976	16 18 16.61	+ 89.02	42.23	− 24 2 3.40	. . .
73 l. c.	3 10 56.50	+4.28	.992	15 11 46.79	259 56 58.84	− 69.50	42.23	+87 38 7.12	. . .
ο Tauri	19 24.730	− .392	.998	3 19 10.340	343 37 31.43	+ 26.64	42.23	+ 8 39 44.16	24.65
ε Eridani . . .	28 14.252	− .335	−14.004	3 27 59.913	2 5 28.81	+ 52.39	42.23	− 9 48 38.97	24.84
5 H. Camelop. .	39 33.18	− .91	.012	3 39 18.26	281 17 39.69	− 32.38	42.23	+71 0 34.92	25.22
ζ Urs. Min. S. P.	47 57.59	+ .56	.017	15 47 44.13	250 26 25.71	−101.44	42.23	+78 7 2.04	26.28

c ˢ.000 *c′* −ˢ.017 ⊿T −13ˢ.922 Nadir 134° 57′ 16″.78 *t* 64.6
b − .383 at 1ʰ 26ᵐ Equator 352 17 42 .23 B 25.97
a − .073 ρ −.040 T 65

NOVEMBER 8, 1894. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	⊿T	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
50 Cassiop. . .	1 54 46.07	−.83	−15.637	1 54 29.60	280 23 19.61	− 33.70	42.25	+71 54 56.34	25.80
4 Urs. Min. S. P.	2 9 27.24	+.23	.645	14 9 11.83	250 21 45.40	−102.49	42.30	+78 2 20.61	25.35
ξ 2 Ceti	22 51.293	−.448	.653	2 22 35.192	344 17 44.65	+ 27.50	42.35	+ 7 59 30.20	25.65
14 . .	30 36.172	−.444	.657	2 30 20.071	345 53 56.50	+ 29.34	42.37	+ 6 23 16.53	. . .
15 . .	45 58.505	−.463	.665	2 45 42.375	337 38 15.48	+ 20.46	42.42	+14 39 6.48	. . .
α Ceti	57 4.293	−.438	.671	2 56 48.184	348 36 20.82	+ 32.57	42.46	+ 3 40 49.07	25.60
17 . .	3 9 8.748	−.476	.678	3 8 52.594	331 37 59.74	+ 14.67	42.50	+20 39 28.09	. . .
ο Tauri	19 26.616	−.449	.683	3 19 10.484	343 37 32.72	+ 26.76	42.53	+ 8 39 43.05	25.79
ζ Urs. Min. S. P.	47 59.52	+.23	.699	15 47 44.05	250 26 25.65	−102.21	42.63	+78 7 0.81	25.87
18 . .	58 45.957	−.477	.705	3 58 29.775	330 29 37.80	+ 13.62	42.66	+21 47 51.24	. . .
ο 1 Eridani . . .	4 7 1.244	−.416	.710	4 6 45.118	359 23 23.61	+ 47.96	42.69	− 7 6 28.88	25.28
202 . .	14 12.687	−.353	.714	4 13 56.620	26 18 23.22	+143.61	42.71	− 34 3 4.12	. . .
135 . .	20 22.944	−.353	.717	4 20 6.874	26 30 42.45	+145.28	42.74	− 34 15 24.99	. . .
20 n. f.	26 18.577	−.545	.720	4 26 2.312	309 27 19.04	− 4.72	42.76	+42 50 28.44	. . .
Gr. 848	35 1.75	−.94	.725	4 34 45.09	276 33 21.52	− 38.77	42.78	+75 45 0.03	26.12
21 . .	44 25.229	−.444	.730	4 44 9.055	345 30 21.68	+ 28.89	42.82	+ 6 46 52.25	. . .
π 5 Orionis . . .	49 3.729	−.435	.733	4 48 47.561	350 0 48.86	+ 34.34	42.83	+ 2 16 19.63	25.09
23 . .	58 50.932	−.463	.738	4 58 34.731	337 1 45.11	+ 19.85	42.86	+15 15 37.90	. . .
203 . .	5 8 29.839	−.397	.743	5 8 13.699	8 36 8.22	+ 66.39	42.90	−16 19 31.71	. . .
137 . .	13 59.131	−.352	.747	5 13 43.032	27 14 46.27	+151.61	42.91	−34 59 34.97	. . .
25 . .	26 10.471	−.507	.753	5 25 54.211	320 10 40.45	+ 4.48	42.95	+32 6 58.02	. . .
ε Orionis . .	31 9.886	−.428	.756	5 30 53.702	353 32 58.89	+ 39.08	42.97	− 1 15 55.00	25.77
28 . .	36 7.894	−.355	.759	5 35 51.780	26 22 48.35	+144.29	42.99	−34 7 29.65	. . .
κ Orionis . . .	43 3.366	−.410	.763	5 42 47.193	1 58 59.92	+ 52.53	43.01	− 9 42 9.44	25.40
35 Draco. S. P.	54 20.54	+.17	.769	17 54 4.94	249 18 10.63	−107.69	43.05	+76 58 39.89	25.91
ν Orionis . . .	6 1 51.303	−.462	.773	6 1 35.068	337 30 20.91	+ 20.35	43.07	+14 47 1.81	25.81
22 H. Camelop. .	7 34.75	−.76	−15.776	6 7 18.21	282 56 52.16	− 30.63	43.09	+69 21 21.56	25.25

c ˢ.000 *c′* −ˢ.017 ⊿T −15ˢ.718 Nadir 134° 57′ 17″.11 at 4ʰ.0 *t* 64.8
b − .400 at 4ʰ 21ᵐ Equator 352 17 42 .73 at 4 .3 B 26.05
a − .157 ρ −.033 Rate +0″.20 hourly T 65

NOVEMBER 14, 1894. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
50 Cassiop.	1 54 50.43	−.69	−20.193	1 54 29.55	280 23 17.80	− 33.74	42.44	+71 54 58.38	25.48
4 Urs. Min. S. P.	2 9 32.40	−.27	.201	14 9 11.93	250 21 44.03	−102.62	42.49	+78 2 18.92	25.77
ξ 2 Ceti	22 56.001	−.551	.207	2 22 35.243	344 17 44.74	+ 27.53	42.53	+ 7 59 30.26	25.24
14	30 40.858	−.550	.211	2 30 20.097	345 53 57.19	+ 29.37	42.56	+ 6 23 16.00	. . .
15	46 3.188	−.557	.219	2 45 42.412	337 38 15.69	+ 20.48	42.59	+14 39 6.42	. . .
η Eridani	51 39.552	−.544	.222	2 51 18.786	1 35 41.42	+ 51.82	42.63	− 9 18 50.61	25.67
α Ceti	57 9.001	−.550	.225	2 56 48.226	348 36 20.98	+ 32.60	42.65	+ 3 40 49.07	25.07
17	3 9 13.398	−.561	.230	3 8 52.607	331 37 59.64	+ 14.68	42.69	+20 39 28.37	. . .
o Tauri	19 31.323	−.555	.235	3 19 10.533	343 37 33.05	+ 26.79	42.72	+ 8 39 42.88	25.52
ζ Urs. Min. S. P.	48 4.36	−.34	.250	15 47 43.77	250 26 23.43	−102.34	42.82	+78 6 58.27	25.27
18	58 50.820	−.567	.255	3 58 29.998	330 29 37.62	+ 13.64	42.85	+21 47 51.59	. . .
o 1 Eridani	4 7 6.109	−.554	.260	4 6 45.295	359 23 24.81	+ 48.04	42.88	− 7 6 29.97	25.24
202	14 17.516	−.549	.263	4 13 56.704	26 18 24.83	+143.90	42.90	− 34 3 5.83	. . .
135	20 27.844	−.549	.266	4 20 7.029	26 30 44.12	+145.61	42.93	− 34 15 26.80	. . .
20	26 23.312	−.579	.269	4 26 2.464	309 27 18.32	− 4.73	42.95	+42 50 29.36	. . .
Gr. 848	35 6.40	−.67	.274	4 34 45.46	276 33 19.78	− 38.88	42.97	+75 45 2.07	25.49
21	44 30.001	−.561	.278	4 44 9.162	345 30 21.88	+ 28.97	43.01	+ 6 46 52.16	. . .
π 5 Orionis	49 8.493	−.561	.281	4 48 47.651	350 0 49.84	+ 34.44	43.02	+ 2 16 18.74	25.06
23	58 55.711	−.565	.285	4 58 34.861	337 1 45.61	+ 19.91	43.05	+15 15 37.53	. . .
203	5 8 34.654	−.561	.290	5 8 13.803	8 36 9.75	+ 66.59	43.09	−16 19 33.25	. . .
137	14 3.974	−.560	.293	5 13 43.121	27 14 47.66	+152.06	43.10	−34 59 36.62	. . .
25	26 15.221	−.572	.299	5 25 54.350	320 10 40.46	+ 4.49	43.14	+32 6 58.19	. . .
ε Orionis	31 14.729	−.565	.302	5 30 53.862	353 32 59.93	+ 39.17	43.16	− 1 15 55.94	25.69
28	36 12.766	−.565	.304	5 35 51.897	26 22 49.41	+144.62	43.18	−34 7 30.85	. . .
κ Orionis	43 8.194	−.565	.308	5 42 47.321	1 59 1.55	+ 52.64	43.20	− 9 42 10.99	25.62
35 Draco. S. P.	54 25.15	−.44	.313	17 54 4.40	249 18 8.73	−107.87	43.24	+76 58 37.62	24.87
ν Orionis	6 1 56.074	−.569	.317	6 1 35.188	337 30 21.73	+ 20.39	43.26	+14 47 1.14	25.81
22 H. Camelop.	7 39.59	−.61	−20.320	6 7 18.66	282 56 51.40	− 30.68	43.28	+69 21 22.56	25.00

c −s.003 c' −s.020 ΔT −20s.261 Nadir 134° 57′ 17″.43 at 4h.0 t 62.0
b −.437 at 4h 11m Equator 352 17 42 .90 at 4 .2 B 25.95
a −.310 at 4h.0 Rate −s.01 ρ −.030 Rate +0″.20 hourly T 63

NOVEMBER 16, 1894. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
50 Cassiop.	1 54 51.89	−.60	−21.866	1 54 29.42	280 23 18.14	− 34.27	43.33	+71 54 59.46	25.43
4 Urs. Min. S. P.	2 9 34.01	−.27	.874	14 9 11.87	250 21 44.93	−104.24	43.33	+78 2 17.36	25.39
ξ 2 Ceti	22 57.636	−.495	.881	2 22 35.260	344 17 45.16	+ 27.97	43.33	+ 7 59 30.20	25.65
14	30 42.472	−.492	.886	2 30 20.094	345 53 56.73	+ 29.84	43.33	+ 6 23 16.76	. . .
15	46 4.817	−.496	.894	2 45 42.427	337 38 15.95	+ 20.81	43.33	+14 39 6.57	. . .
η Eridani	51 41.230	−.481	.897	2 51 18.852	1 35 41.23	+ 52.65	43.33	− 9 18 50.55	25.75
α Ceti	57 10.651	−.488	.900	2 56 48.263	348 36 20.99	+ 33.12	43.33	+ 3 40 49.22	25.21
17	3 9 14.998	−.496	.907	3 8 52.595	331 37 59.75	+ 14.92	43.33	+20 39 28.66	. . .
o Tauri	19 32.944	−.487	.912	3 19 10.545	343 37 32.87	+ 27.21	43.33	+ 8 39 43.25	25.47
ζ Urs. Min. S. P.	48 5.88	−.22	.928	15 47 43.73	250 26 23.35	−103.83	43.33	+78 6 56.19	24.36
18	58 52.435	−.492	.934	3 58 30.009	330 29 37.87	+ 13.83	43.33	+21 47 51.63	. . .
o 1 Eridani	4 7 7.702	−.469	.939	4 6 45.294	359 23 25.36	+ 48.72	43.33	− 7 6 30.75	26.13
202	14 19.158	−.452	.943	4 13 56.763	26 18 24.23	+145.93	43.33	− 34 3 6.83	. . .
135	20 29.444	−.449	.946	4 20 7.049	26 30 43.34	+147.65	43.33	− 34 15 27.66	. . .
20	26 24.899	−.510	.949	4 26 2.440	309 27 18.50	− 4.79	43.33	+42 50 29.62	. . .
Gr. 848	35 8.20	−.67	.954	4 34 45.58	276 33 20.08	− 39.40	43.33	+75 45 2.65	25.89
21	44 31.686	−.472	.959	4 44 9.255	345 30 22.40	+ 29.36	43.33	+ 6 46 51.57	. . .
π 5 Orionis	49 10.143	−.468	.962	4 48 47.713	350 0 49.86	+ 34.90	43.33	+ 2 16 18.57	25.41
23	58 57.318	−.478	.967	4 58 34.873	337 1 45.62	+ 20.17	43.33	+15 15 37.54	. . .
203	5 8 36.275	−.453	.973	5 8 13.849	8 36 9.53	+ 67.47	43.33	−16 19 33.67	. . .
137	14 5.595	−.438	.976	5 13 43.181	27 14 46.50	+154.10	43.33	−34 59 37.27	. . .
25	26 16.878	−.489	.982	5 25 54.407	320 10 40.46	+ 4.55	43.33	+32 6 58.32	. . .
ε Orionis	31 16.329	−.459	.985	5 30 53.885	353 32 59.56	+ 39.70	43.33	− 1 15 55.93	25.78
28	36 14.466	−.433	.988	5 35 52.045	26 22 48.23	+146.62	43.33	−34 7 31.52	. . .
κ Orionis	43 9.816	−.450	.991	5 42 47.375	1 59 1.25	+ 53.37	43.33	− 9 42 11.29	25.92
35 Draco. S. P.	54 26.46	−.18	.998	17 54 4.28	249 18 10.09	−109.39	43.33	+76 58 37.37	25.50
ν Orionis	6 1 57.774	−.467	−22.002	6 1 35.305	337 30 22.05	+ 20.67	43.33	+14 47 0.61	26.55
22 H. Camelop.	7 41.36	−.61	.005	6 7 18.75	282 56 51.56	− 31.10	43.33	+69 21 22.87	25.40

c s.000 c' −s.017 ΔT −21s.941 Nadir 134° 57′ 17″.57 t 55.1
b −.385 at 3h.9 Rate +s.005 at 4h 12m Equator 352 17 43 .33 B 25.95
a −.249 at 4 .1 Rate +.01 ρ −.033 T 56

NOVEMBER 19, 1894. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
50 Cassiop. . . .	1 54 54.52	−.81	−24.265	1 54 29.45	280 23 15.59	− 33.82	41.85	+71 55 0.08	25.55
4 Urs. Min. S. P.	2 9 36.22	+.12	.273	14 9 12.07	250 21 40.74	−102.83	41.87	+78 2 16.04	25.04
ξ 2 Ceti	23 0.022	−.481	.279	2 22 35.262	344 17 43.93	+ 27.58	41.90	+ 7 59 30.39	25.24
14 . .	30 44.865	−.478	.283	2 30 20.104	345 53 56.26	+ 29.42	41.91	+ 6 23 16.23	. . .
15 . .	46 7.224	−.495	.291	2 45 42.438	337 38 14.50	+ 20.50	41.93	+14 39 6.93	. . .
η Eridani . . .	51 43.623	−.452	.294	2 51 18.877	1 35 40.64	+ 51.88	41.94	− 9 18 50.58	25.25
α Ceti	57 13.022	−.474	.297	2 56 48.251	348 36 20.64	+ 32.63	41.95	+ 3 40 48.68	25.42
17 . .	3 9 17.498	−.506	.303	3 8 52.689	331 37 58.46	+ 14.70	41.97	+20 39 28.81	. . .
ο Tauri	19 35.387	−.482	.308	3 19 10.597	343 37 32.25	+ 26.85	41.99	+ 8 39 42.89	25.60
ζ Urs. Min. S. P.	48 7.92	+.13	.322	15 47 43.73	250 26 21.46	−102.76	42.04	+78 6 56.66	25.45
18 . .	58 54.907	−.510	.327	3 58 30.070	330 29 36.55	+ 13.69	42.06	+21 47 51.82	. . .
ο 1 Eridani . .	4 7 10.176	−.455	.332	4 6 45.389	359 23 24.59	+ 48.24	42.07	− 7 6 30.76	25.59
202 . .	14 21.516	−.403	.335	4 13 56.778	26 18 24.68	+144.50	42.08	− 34 3 7.10	. . .
135 . .	20 31.816	−.403	.338	4 20 7.075	26 30 43.78	+146.21	42.09	− 34 15 27.90	. . .
20 n. fol. . .	26 27.541	−.566	.341	4 26 2.634	309 27 16.66	− 4.75	42.10	+42 50 30.19	. . .
Gr. 848	35 10.95	−.92	.346	4 34 45.68	276 33 17.42	− 39.04	42.12	+75 45 3.74	25.54
21 . .	44 34.079	−.479	.350	4 44 9.250	345 30 21.39	+ 29.09	42.13	+ 6 46 51.65	. . .
π 5 Orionis . . .	49 12.601	−.471	.353	4 48 47.777	350 0 49.40	+ 34.58	42.14	+ 2 16 18.16	25.39
23 . .	58 59.804	−.495	.357	4 58 34.952	337 1 44.18	+ 19.99	42.16	+15 15 37.99	. . .
203 . .	5 8 38.704	−.439	.362	5 8 13.903	8 36 8.95	+ 66.85	42.17	−16 19 33.63	. . .
137 . .	14 8.017	−.401	.365	5 13 43.251	27 14 47.54	+152.66	42.18	− 34 59 38.02	. . .
25 . .	26 19.414	−.533	.371	5 25 54.510	320 10 38.90	+ 4.51	42.20	+32 6 58.79	. . .
ε Orionis	31 18.751	−.465	.374	5 30 53.912	353 32 59.51	+ 39.32	42.21	− 1 15 56.62	25.95
28 . .	36 16.816	−.403	.376	5 35 52.037	26 22 49.05	+145.16	42.22	− 34 7 31.99	. . .
κ Orionis	43 12.302	−.450	.380	5 42 47.472	1 59 0.69	+ 52.83	42.23	− 9 42 11.29	25.27
35 Draco. S. P. .	54 28.37	+.09	.385	17 54 4.07	249 18 7.09	−108.28	42.25	+76 58 36.56	25.42
ν Orionis . . .	6 2 0.267	−.494	.389	6 1 35.384	337 30 21.01	+ 20.46	42.26	+14 47 0.79	26.05
22 H. Camelop. .	7 44.14	−.77	−24.392	6 7 18.98	282 56 49.99	− 30.79	42.27	+69 21 23.07	25.64

c −ˢ.003 *c′* −ˢ.020 ΔT −24ˢ.334 Nadir 134° 57′ 16″.53 at 4ʰ.0 *t* 61.2
b − .416 at 4ʰ 12ᵐ Equator 352 17 42 .08 at 4 .2 B 25.99
a − .192 ρ −.030 Rate +0″.10 hourly T 62

NOVEMBER 23, 1894. CIR. W, WT. 5, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
ν Tauri	3 58 3.408	− .432	−27.841	3 57 35.135	346 35 8.94	+ 30.71	42.50	+ 5 42 2.85	25.10
Gr. 750	4 4 20.75	−2.94	.844	4 3 49.97	267 1 49.22	− 55.16	42.49	+85 16 48.43	25.21
19 . .	10 55.623	− .387	.847	4 10 27.389	0 5 40.90	+ 50.05	42.47	− 7 48 48.48	. . .
ν Eridani . . .	31 33.601	− .403	.858	4 31 5.340	355 50 51.08	+ 43.15	42.44	− 3 33 51.79	26.51
22 . .	45 43.112	− .481	.865	4 45 14.766	333 37 35.54	+ 16.85	42.42	+18 39 50.03	. . .
ε Urs. Min. S. P.	57 2.56	+1.09	.871	16 56 35.78	254 31 40.87	− 87.55	42.40	+82 12 30.92	25.59
β Eridani . . .	5 3 10.543	− .402	.874	5 2 42.267	357 30 5.30	+ 45.72	42.39	− 5 13 8.63	26.20
24 . .	12 14.823	− .579	.878	5 11 46.366	312 17 17.49	− 2.32	42.37	+40 0 27.20	. . .
26 . .	29 4.01	−2.76	.887	5 28 33.36	267 9 58.38	− 54.89	42.34	+85 8 38.85	. . .
κ Orionis	43 15.787	− .392	.894	5 42 47.501	1 59 1.51	+ 53.45	42.32	− 9 42 12.64	26.30
204 . .	47 45.039	− .298	.896	5 47 16.845	28 3 13.84	+162.07	42.31	− 35 48 13.60	. . .
138 . .	54 18.324	− .300	.899	5 53 50.125	27 32 30.30	+157.11	42.30	− 35 17 25.11	. . .
δ Urs. Min. S. P.	6 6 16.89	+2.88	.905	18 5 51.87	258 55 41.04	− 73.80	42.28	+86 36 44.96	25.40
8 Monocerotis .	18 41.386	− .440	.911	6 18 13.035	347 38 13.12	+ 31.98	42.26	+ 4 38 57.16	25.76
18 Monocerotis .	42 52.222	− .436	.923	6 42 23.863	349 45 18.69	+ 34.66	42.22	+ 2 31 48.87	25.49
51 H. Cephei . .	52 8.90	−4.28	.928	6 51 36.69	265 6 1.25	− 59.07	42.21	+87 12 40.03	25.90
207 . .	59 7.443	− .358	.932	6 58 39.153	15 56 43.77	+ 89.67	42.19	− 23 40 31.25	. . .
λ Geminorum .	7 12 32.625	− .483	.938	7 12 4.204	335 33 28.27	+ 18.77	42.17	+16 43 55.13	26.11
τ Draco. S. P. .	17 58.05	+ .20	−27.942	19 17 30.31	245 29 37.38	−132.15	42.16	+73 9 43.07	25.51

c ˢ.000 *c′* −ˢ.017 ΔT −27ˢ.891 Nadir 134° 57′ 16″.37 at 6ʰ.0 *t* 55.8
b − .432 at 5ʰ 39ᵐ Equator 352 17 42 .33 at 5 .6 B 26.05
a − .103 at 5ʰ.8 Rate −ˢ.01 ρ −.030 Rate −0″.10 hourly T 57

DECEMBER 13, 1894. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ν Tauri	3 58 17.136	− .209	−41.665	3 57 35.262	346 35 9.57	+ 31.06	42.65	+ 5 42 2.02	24.41
Gr. 750	4 4 36.87	−4.64	.669	4 3 50.56	267 1 43.11	− 55.82	42.66	+85 16 55.37	25.08
19	11 9.352	− .124	.673	4 10 27.555	0 5 43.45	+ 50.65	42.67	− 7 48 51.43	. . .
ν Eridani	31 47.393	− .151	.685	4 31 5.557	355 50 53.60	+ 43.68	42.70	− 3 33 54.55	26.47
22	45 57.055	− .296	.693	4 45 15.066	333 37 35.97	+ 17.06	42.72	+18 39 49.69	. . .
ε Urs. Min. S. P.	57 14.38	+2.54	.700	16 56 35.22	254 31 35.23	− 88.64	42.74	+82 12 23.85	25.64
β Eridani	5 3 24.379	− .141	.704	5 2 42.534	357 30 8.49	+ 46.28	42.75	− 5 13 12.02	26.45
24	12 28.965	− .477	.709	5 11 46.779	312 17 15.56	− 2.35	42.77	+40 0 29.56	. . .
26	29 21.67	−4.52	.720	5 28 35.43	267 9 53.06	− 55.56	42.80	+85 8 45.30	. . .
27 dup	36 10.743	− .161	.724	5 35 28.858	354 16 45.99	+ 41.31	42.81	− 1 59 44.49	. . .
κ Orionis	43 29.709	− .112	.728	5 42 47.869	1 59 5.39	+ 54.11	42.82	− 9 42 16.68	26.42
204	47 58.825	+ .083	.731	5 47 17.177	28 3 19.79	+164.12	42.83	−35 48 21.08	. . .
138	54 32.195	+ .078	.735	5 53 50.538	27 32 35.60	+159.11	42.84	−35 17 31.87	. . .
δ Urs. Min. S. P.	6 6 23.26	+6.09	.742	18 5 47.61	258 55 36.45	− 74.72	42.86	+86 36 38.87	25.34
8 Monocerotis	18 55.429	− .203	.749	6 18 13.477	347 38 15.84	+ 32.37	42.88	+ 4 38 54.67	25.58
18 Monocerotis	43 6.315	− .189	.764	6 42 24.362	349 45 22.39	+ 35.08	42.92	+ 2 31 45.45	25.93
51 H. Cephei	52 33.32	−7.76	.769	6 51 43.79	265 5 56.94	− 59.78	42.93	+87 12 45.77	25.00
207	59 21.415	− .017	.774	6 58 39.624	15 56 48.83	+ 90.74	42.95	−23 40 36.62	. . .
λ Geminorum	7 12 46.796	− .281	.781	7 12 4.734	335 33 31.21	+ 18.98	42.97	+16 43 52.78	26.64
τ Draco. S. P.	18 10.28	+1.06	−41.785	19 17 29.56	245 29 34.94	−133.73	42.98	+73 9 38.23	25.62

No. 27 ζ Orionis 2″.5

c +ˢ.006	c′ −ˢ.011	ΔT −41ˢ.725	Nadir 134° 57′ 16″.86 at 6ʰ.0	t 43.9
b − .347		at 5ʰ 39ᵐ	Equator 352 17 42 .81 at 5 .6	B 25.72
a + .187		ρ −.036	Rate +0″.10 hourly	T 44

JANUARY 25, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ν Tauri	3 59 13.221	− .416	−97.712	3 57 35.093	346 35 15.53	+ 31.47	45.42	+ 5 41 58.42	24.52
Gr. 750	——			4 3 ——	267 1 35.55	− 56.55	45.42	+85 17 6.42	24.89
19	4 12 5.455	− .335	.725	4 10 27.395	0 5 51.41	+ 51.32	45.42	− 7 48 57.31	. . .
ν Eridani	32 43.585	− .360	.746	4 31 5.479	355 51 0.20	+ 44.25	45.42	− 3 33 59.03	25.48
Gr. 848	36 25.02	−1.78	.749	4 34 45.49	——			+75 45 ——	. . .
22	46 53.367	− .498	.760	4 45 15.109	333 37 38.68	+ 17.28	45.42	+18 39 49.46	. . .
ε Urs. Min. S. P.	58 13.00	+2.26	.771	16 56 37.49	254 31 24.95	− 89.85	45.42	+82 12 9.68	24.86
β Eridani	5 4 20.721	− .351	.777	5 2 42.593	357 30 16.44	+ 46.91	45.42	− 5 13 17.93	25.97
24	13 25.300	− .668	.786	5 11 46.846	312 17 13.98	− 2.38	45.42	+40 0 33.82	. . .
26	30 16.73	−4.58	.803	5 28 34.35	267 9 43.45	− 56.35	45.42	+85 8 58.32	. . .
27	37 7.236	− .370	.810	5 35 29.056	354 16 54.19	+ 41.89	45.42	− 1 59 50.66	. . .
κ Orionis	44 26.186	− .323	.817	5 42 48.046	1 59 14.57	+ 54.87	45.42	− 9 42 24.02	25.83
204	48 55.024	− .140	.822	5 47 17.062	28 3 29.60	+166.49	45.42	−35 48 30.67	. . .
138	55 28.437	− .145	.828	5 53 50.464	27 32 47.54	+161.41	45.42	−35 17 43.53	. . .
δ Urs. Min. S. P.	6 7 19.50	+5.69	.840	18 5 47.35	258 55 25.99	− 75.80	45.42	+86 36 24.77	24.89
8 Monocerotis	19 52.057	− .409	.853	6 18 13.795	347 38 22.79	+ 32.84	45.42	+ 4 38 49.79	25.34
18 Monocerotis	44 3.064	− .397	.877	6 42 24.790	349 45 29.16	+ 35.58	45.42	+ 2 31 40.68	24.64
51 H. Cephei	53 33.18	−7.72	.887	6 51 47.57	265 5 47.89	− 60.64	45.42	+87 12 58.17	25.36
207	7 0 18.092	− .234	.893	6 58 39.965	15 57 1.98	+ 92.06	45.42	−23 40 48.62	. . .
λ Geminorum	13 43.738	− .486	.907	7 12 5.345	335 33 35.55	+ 19.27	45.42	+16 43 50.60	25.93
τ Draconis S. P.	19 6.27	+ .82	−97.912	19 17 29.18	245 29 24.41	−135.78	45.42	+73 9 23.21	24.33

c ˢ.000	c′ −ˢ.017	ΔT −1ᵐ 37ˢ.813	Nadir 134° 57′ 20″.03	t 37.1
b − .497		at 5ʰ 40ᵐ	Equator 352 17 45 .42	B 25.71
a + .050		ρ −.060		T 38

JANUARY 26, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
ν Tauri	3 59 14.850	− .432	−99.311	3 57 35.107	346 35 16.66	+ 31.47	46.22	+ 5 41 58.09	25.31
Gr. 750	4 5 29.40	−4.71	.318	4 3 45.37	267 1 36.17	− 56.54	46.22	+85 17 6.59	25.39
19	12 7.071	− .350	.326	4 10 27.395	0 5 52.40	+ 51.30	46.22	− 7 48 57.48	. . .
ν Eridani	32 45.192	− .376	.350	4 31 5.466	355 51 1.14	+ 44.22	46.22	− 3 33 59.14	26.03
22	46 54.918	− .514	.367	4 45 15.037	333 37 40.08	+ 17.27	46.22	+18 39 48.87	. . .
ε Urs. Min. S. P.	58 14.97	+2.24	.380	16 56 37.83	254 31 25.78	− 89.80	46.22	+82 12 9.76	25.68
β Eridani	5 4 22.264	− .367	.387	5 2 42.510	357 30 17.30	+ 46.89	46.22	− 5 13 17.97	26.41
24	13 26.943	− .688	.397	5 11 46.858	312 17 14.85	− 2.38	46.22	+40 0 33.75	. . .
26	30 18.03	−4.59	.417	5 28 34.02	267 9 44.26	− 56.39	46.22	+85 8 58.35	. . .
27 m.	37 8.842	− .386	.424	5 35 29.032	354 16 55.18	+ 41.93	46.22	− 1 59 50.89	. . .
$\varkappa$ Orionis	44 27.815	− .339	.434	5 42 48.042	1 59 15.16	+ 54.94	46.22	− 9 42 23.88	26.04
204	48 56.738	− .156	.439	5 47 17.143	28 3 30.62	+166.75	46.22	−35 48 31.15	. . .
138	55 30.073	− .160	.447	5 53 50.466	27 32 47.69	+161.70	46.22	−35 17 43.17	. . .
δ Urs. Min. S. P.	6 7 21.92	+5.66	.460	18 5 48.12	258 55 26.31	− 75.94	46.22	+86 36 24.15	25.07
8 Monocerotis	19 53.750	− .425	.475	6 18 13.850	347 38 23.45	+ 32.90	46.22	+ 4 38 49.87	25.68
18 Monocerotis	44 4.721	− .412	.503	6 42 24.806	349 45 29.96	+ 35.64	46.22	+ 2 31 40.62	25.08
51 H. Cephei	53 34.74	−7.72	.515	6 51 47.51	265 5 48.41	− 60.74	46.22	+87 12 58.55	25.80
207	7 0 19.814	− .250	.522	6 58 40.042	15 57 2.33	+ 92.20	46.22	−23 40 48.31	. . .
λ Geminorum	13 45.367	− .500	.538	7 12 5.329	335 33 36.39	+ 19.29	46.22	+16 43 50.54	26.48
τ Draconis S. P.	19 7.82	+ .81	−99.544	19 17 29.09	245 29 25.32	−135.90	46.22	+73 9 23.20	25.20

c ˢ.000 c' −ˢ.017 ΔT −1ᵐ 39ˢ.429 Nadir 134° 57′ 20″.36 t 34.3
b − .509 at 5ʰ 40ᵐ Equator 352 17 46 .22 B 25.58
a + .040 ρ −.070 T 35

JANUARY 28, 1895. CIR. W, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Gr. 966	5 27 29.47	− 1.63	−102.569	5 25 45.27	277 19 40.84	− 39.96	47.31	+74 58 46.43	25.29
ε Orionis	32 37.464	− .432	.576	5 30 54.456	353 33 11.56	+ 41.39	47.31	− 1 16 5.64	26.44
27 fol.	37 12.043	− .428	.580	5 35 29.035	354 16 55.55	+ 42.49	47.31	− 1 59 50.73	. . .
$\varkappa$ Orionis	44 30.929	− .384	.590	5 42 47.955	1 59 15.74	+ 55.67	47.31	− 9 42 24.10	26.27
35 Draco. S. P.	55 45.53	+ .95	.603	17 54 3.88	249 17 54.04	−114.21	47.31	+76 58 12.52	25.37
ν Orionis	6 3 19.280	− .521	.612	6 1 36.147	337 30 28.78	+ 21.57	47.31	+14 46 56.96	26.93
166	18 1.445	− .259	.630	6 16 18.556	22 16 46.51	+123.65	47.31	− 30 1 2.85	. . .
30	24 28.612	− .554	.637	6 22 45.421	332 0 41.70	+ 15.95	47.31	+20 16 49.66	. . .
23 H. Camelop.	30 11.61	− 2.19	.644	6 28 26.78	272 37 39.45	− 47.31	47.31	+79 40 55.17	25.16
S Monocerotis	36 56.484	− .494	.652	6 35 13.338	342 17 42.03	+ 26.87	47.31	+ 9 59 38.41	25.92
18 Monocerotis	44 7.900	− .452	.661	6 42 24.787	349 45 30.29	+ 36.12	47.31	+ 2 31 40.90	24.90
96 l. c.	51 21.99	+ .79	.669	18 49 40.11	247 38 10.20	−123.63	47.31	+75 18 19.26	. . .
31	58 35.361	− .616	.678	6 56 52.067	322 46 45.90	+ 7.14	47.31	+29 30 54.27	. . .
141	7 15 10.761	− .206	.698	7 13 27.857	29 9 21.25	+181.29	47.31	−36 54 35.23	. . .
208	21 41.124	− .266	.706	7 19 58.152	21 21 43.18	+118.29	47.31	−29 5 54.16	. . .
λ Urs. Min. S. P.	27 57.17	+17.44	.713	19 26 31.90	261 17 24.41	− 70.43	47.31	+86 58 26.67	26.30
33	46 37.392	− .297	.736	7 44 54.359	16 51 58.36	+ 96.76	47.31	−24 35 47.81	. . .
36	56 7.69	−17.89	.747	7 54 7.05	263 21 55.76	− 65.17	47.31	+88 56 56.72	. . .
Br. 1147	8 8 12.98	− 1.73	.762	8 6 28.49	276 13 44.76	− 41.45	47.31	+76 4 44.00	25.48
$\varkappa$ Cephei S. P.	13 59.30	+ 1.00	.769	20 12 17.53	249 43 13.25	−111.50	47.31	+77 23 34.44	26.82
Br. 1197	22 9.757	− .419	.778	8 20 26.560	355 50 52.70	+ 44.71	47.31	− 3 33 50.10	26.50
41	33 50.885	− .472	.792	8 32 7.621	346 13 4.48	+ 31.39	47.31	+ 6 4 11.44	. . .
ε Hydrae	42 58.042	− .476	−102.804	8 41 14.762	345 29 2.16	+ 30.51	47.31	+ 6 48 14.64	25.60

c +ˢ.010 c' −ˢ.007 ΔT −1ᵐ 42ˢ.667 Nadir 134° 57′ 21″.23 t 32.3
b − .533 at 6ʰ 49ᵐ Equator 352 17 47 .31 B 25.78
a − .013 ρ −.072 T 32

142991

JANUARY 29, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
Gr. 966	5 27 31.00	− 1.81	− 104.023	5 25 45.17	277 19 37.62	− 39.24	45.57	+74 58 47.19	25.08
ε Orionis	32 38.878	− .428	.029	5 30 54.421	353 33 10.61	+ 40.63	45.60	− 1 16 5.64	26.69
κ Orionis	44 32.443	− .377	.041	5 42 48.025	1 59 14.99	+ 54.60	45.66	− 9 42 23.93	26.31
35 Draco. S. P.	55 46.89	+ 1.14	.052	17 54 3.98	249 17 51.02	− 111.92	45.72	+76 58 13.38	26.85
ν Orionis	6 3 20.766	− .532	.059	6 1 36.175	337 30 27.02	+ 21.14	45.75	+14 46 57.59	26.63
166	18 2.839	− .250	.074	6 16 18.515	22 16 47.01	+120.91	45.83	−30 1 2.09	. . .
30	24 30.033	− .571	.080	6 22 45.382	332 0 40.79	+ 15.58	45.86	+20 16 49.49	. . .
23 H. Camelop.	30 13.20	− 2.37	.086	6 28 26.74	272 37 36.12	− 46.17	45.89	+79 40 55.94	25.01
S Monocerotis	36 57.951	− .506	.093	6 35 13.352	342 17 41.23	+ 26.20	45.93	+ 9 59 38.50	26.13
18 Monocerotis	44 9.285	− .464	.100	6 42 24.721	349 45 30.43	+ 35.17	45.96	+ 2 31 40.36	25.70
96 l. c.	51 23.39	+ .90	.107	18 49 40.18	247 38 5.34	− 120.21	45.99	+75 18 19.14	. . .
31	58 36.803	− .641	.115	6 56 52.047	322 46 45.52	+ 6.94	46.03	+29 30 53.57	. . .
141	7 15 12.096	− .215	.131	7 13 27.750	29 9 24.37	+175.60	46.11	−36 54 33.86	. . .
208	21 42.517	− .278	.138	7 19 58.101	21 21 46.34	+114.68	46.14	−29 5 54.88	. . .
λ Urs. Min. S. P.	27 57.73	+18.50	.144	19 26 32.09	261 17 21.88	− 68.35	46.19	+88 58 27.34	27.64
33	46 38.828	− .320	.163	7 44 54.345	16 51 59.32	+ 93.99	46.27	−24 35 47.04	. . .
36	56 9.30	−18.52	.172	7 54 6.61	263 21 53.02	− 63.38	46.31	+88 56 56.67	. . .
Br. 1147	8 8 14.52	− 1.78	.184	8 6 28.56	276 13 42.96	− 40.33	46.38	+76 4 43.75	26.39
κ Cephei S. P.	14 0.71	+ 1.02	.190	20 12 17.54	249 43 10.23	−108.50	46.41	+77 23 35.32	28.46
Br. 1197	22 11.207	− .450	.198	8 20 26.559	355 50 53.42	+ 43.54	46.45	− 3 33 50.51	27.10
41	33 52.378	− .504	.210	8 32 7.664	346 13 4.78	+ 30.34	46.51	+ 6 4 11.19	. . .
ε Hydrae	42 59.428	− .509	− 104.219	8 41 14.700	345 29 2.76	+ 29.67	46.56	+ 6 48 14.13	26.38

c s.000 c' − s.017 ΔT − 1m 44s.105 Nadir 134° 57′ 19″.66 at 7h.1 t 44.5
b − .546 at 6h 49m Equator 352 17 45 .99 at 6 .8 B 25.83
a − .002 at 7h.0 Rate − s.02 ρ − .060 Rate +0″.30 hourly T 43

JANUARY 30, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
Gr. 966	5 27 32.56	− 1.85	− 105.475	5 25 45.24	277 19 36.80	− 38.84	45.95	+74 58 47.99	24.12
ε Orionis	32 40.357	− .454	.481	5 30 54.422	353 33 10.60	+ 40.22	45.95	− 1 16 4.87	25.47
κ Orionis	44 33.836	− .400	.494	5 42 47.942	1 59 16.03	+ 54.06	45.95	− 9 42 24.14	26.03
35 Draco. S. P.	55 48.42	+ 1.18	.507	17 54 4.09	249 17 49.50	− 110.83	45.95	+76 58 12.72	26.13
ν Orionis	6 3 22.187	− .557	.515	6 1 36.115	337 30 27.76	+ 20.93	45.95	+14 46 57.26	26.57
166	18 4.296	− .261	.531	6 16 18.504	22 16 49.09	+119.89	45.95	−30 1 3.03	. . .
30	24 31.533	− .595	.538	6 22 45.400	332 0 41.38	+ 15.46	45.95	+20 16 49.11	. . .
23 H. Camelop.	30 14.66	− 2.51	.544	6 28 26.61	272 37 35.39	− 45.86	45.95	+79 40 56.42	24.42
S Monocerotis	36 59.422	− .524	.552	6 35 13.346	342 17 42.03	+ 26.04	45.95	+ 9 59 37.88	26.35
18 Monocerotis	44 10.785	− .478	.559	6 42 24.748	349 45 31.19	+ 34.99	45.95	+ 2 31 39.77	25.84
96 l. c.	51 24.73	+ 1.00	.567	18 49 40.16	247 38 4.05	− 119.71	45.95	+75 18 18.39	. . .
31	58 38.303	− .666	.575	6 56 52.062	322 46 45.40	+ 6.92	45.95	+29 30 53.63	. . .
141	7 15 13.618	− .199	.594	7 13 27.825	29 9 26.04	+175.30	45.95	−36 54 35.39	. . .
208	21 44.038	− .266	.601	7 19 58.171	21 21 46.57	+114.52	45.95	−29 5 55.14	. . .
λ Urs. Min. S. P.	27 58.23	+20.60	.608	19 26 33.22	261 17 20.15	− 68.29	45.95	+88 58 25.91	26.18
33	46 40.257	− .300	.628	7 44 54.329	16 51 59.78	+ 94.03	45.95	−24 35 47.86	. . .
36	56 12.31	−21.03	.639	7 54 5.64	263 21 51.24	− 63.46	45.95	+88 56 58.17	. . .
Br. 1147	8 8 16.28	− 1.96	.652	8 6 28.67	276 13 41.67	− 40.40	45.95	+76 4 44.68	25.39
κ Cephei S. P.	14 1.96	+ 1.25	.658	20 12 17.55	249 43 6.92	−108.72	45.95	+77 23 32.25	25.38
α Cancri	54 32.859	− .540	.703	8 52 46.616	340 1 32.93	+ 23.65	45.95	+12 15 49.37	26.27
9 Hydrae	9 10 42.064	− .479	− 105.721	9 8 55.864	349 31 47.01	+ 34.85	45.95	+ 2 45 24.09	25.93

Chronograph relay stopped at 8h.3

c − s.003 c' − s.020 ΔT − 1m 45s.575 Nadir 134° 57′ 19″.88 t 45.1
b − .568 at 6h 58m Equator 352 17 45 .95 B 25.76
a + .016 ρ − .066 T 45

JANUARY 31, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Gr. 966	5 27 33.70	− 1.69	− 106.978	5 25 45.03	277 19 37.62	− 38.91	45.90	+74 58 47.19	25.16
ε Orionis	32 41.928	− .527	.984	5 30 54.417	353 33 11.43	+ 40.30	45.92	− 1 16 5.81	26.36
κ Orionis	44 35.393	− .482	.999	5 42 47.912	1 59 16.16	+ 54.20	45.96	− 9 42 24.40	26.21
35 Draco. S. P.	55 50.27	+ .84	− 107.012	17 54 4.10	249 17 49.55	− 111.18	46.00	+76 58 12.37	26.10
ν Orionis	6 3 23.723	− .613	.021	6 1 36.089	337 30 27.89	+ 21.01	46.02	+14 46 57.12	26.73
166	18 5.875	− .365	.039	6 16 18.471	22 16 48.92	+120.33	46.07	−30 1 3.18	. . .
30	24 33.012	− .644	.047	6 22 45.321	332 0 41.41	+ 15.52	46.09	+20 16 49.16	. . .
23 H. Camelop.	30 15.73	− 2.23	.053	6 28 26.45	272 37 36.08	− 46.02	46.12	+79 40 56.06	25.08
S Monocerotis	37 1.022	− .586	.061	6 35 13.375	342 17 42.35	+ 26.13	46.14	+ 9 59 37.66	26.57
18 Monocerotis	44 12.350	− .547	.070	6 42 24.733	349 45 30.49	+ 35.11	46.16	+ 2 31 40.56	25.01
96 l. c.	51 26.59	+ .69	.078	18 49 40.20	247 38 4.16	− 120.11	46.18	+75 18 17.87	. . .
31	58 39.846	− .703	.087	6 56 52.056	322 46 45.55	+ 6.94	46.21	+29 30 53.72	. . .
141	7 15 15.189	− .314	.106	7 13 27.769	29 9 25.89	+175.84	46.26	−36 54 35.47	. . .
208	21 45.648	− .371	.115	7 19 58.162	21 21 47.42	+114.82	46.28	−29 5 56.36	. . .
λ Urs. Min. S. P.	28 3.33	+17.03	.123	19 26 33.24	261 17 20.43	− 68.44	46.31	+88 58 25.68	26.32
33	46 41.849	− .400	.145	7 44 54.304	16 52 0.17	+ 94.11	46.37	−24 35 47.91	. . .
36	56 9.41	−17.65	.157	7 54 4.60	263 21 51.81	− 63.49	46.39	+88 56 58.07	. . .
Br. 1147	8 8 17.59	− 1.78	.171	8 6 28.64	276 13 41.84	− 40.41	46.44	+76 4 45.01	25.40
κ Cephei S. P.	14 3.78	+ .89	.178	20 12 17.49	249 43 7.68	−108.72	46.46	+77 23 32.50	26.04
Br. 1197	22 14.271	− .515	.187	8 20 26.569	355 50 53.41	+ 43.62	46.49	− 3 33 50.54	26.70
41	33 55.528	− .565	.202	8 32 7.761	346 13 4.30	+ 30.58	46.53	+ 6 4 11.65	. . .
ε Hydrae	43 2.528	− .568	.215	8 41 14.745	345 29 3.12	+ 29.70	46.56	+ 6 48 13.74	26.30
α Cancri	54 34.421	− .599	− 107.227	8 52 46.595	340 1 32.66	+ 23.55	46.59	+12 15 50.38	25.28

c ˢ.000 *c′* −ˢ.017 ΔT −1ᵐ 47ˢ.095 Nadir 134° 57′ 20″.12 at 7ʰ.2 *t* 45.6
b − .591 at 7ʰ 5ᵐ Equator 352 17 46 .24 at 7 .1 B 25.81
a − .077 ρ −.072 Rate +0″.20 hourly T 45

FEBRUARY 1, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
δ Urs. Min. S. P.	6 5 44.42	+4.69	+0.196	18 5 49.31	258 55 23.44	− 74.86	45.83	+86 36 22.75	25.16
8 Monocerotis	18 14.178	− .557	+ .181	6 18 13.802	347 38 23.46	+ 32.43	45.83	+ 4 38 49.94	24.97
23 H. Camelop.	28 28.52	− 2.22	+ .169	6 28 26.47	272 37 35.05	− 46.01	45.83	+79 40 56.79	24.12
S Monocerotis	35 13.793	− .587	+ .161	6 35 13.367	342 17 41.48	+ 26.13	45.83	+ 9 59 38.22	25.45
18 Monocerotis	42 25.121	− .548	+ .153	6 42 24.726	349 45 30.35	+ 35.12	45.83	+ 2 31 40.36	24.63
51 H. Cephei	51 53.36	− 6.91	+ .142	6 51 46.59	265 5 44.48	− 59.86	45.83	+87 13 1.21	24.74
206	57 34.030	− .382	+ .135	6 57 33.783	20 3 3.34	+108.32	45.83	−27 47 5.83	. . .
32	7 9 13.98	− 2.94	+ .121	7 9 11.16	269 41 35.43	− 50.96	45.83	+82 37 1.36	. . .
β Can. Min.	21 29.629	− .580	+ .107	7 21 29.156	343 47 12.86	+ 27.81	45.83	+ 8 30 5.16	25.99
34	46 56.639	− .467	+ .077	7 46 56.249	5 53 54.70	+ 62.18	45.83	−13 37 11.05	. . .
37	54 37.379	− .686	+ .068	7 54 36.761	326 36 44.20	+ 10.43	45.83	+25 40 51.20	. . .
167	59 55.563	− .294	+ .062	7 59 55.331	31 56 39.70	+214.47	45.83	−39 42 28.34	. . .
39 n. p.	8 6 13.918	− .640	+ .055	8 6 13.333	334 19 35.49	+ 17.79	45.83	+17 57 52.55	. . .
κ Cephei S. P.	12 16.73	+0.89	+ .048	20 12 17.67	249 43 7.20	−109.15	45.83	+77 23 32.22	25.54
Br. 1197	20 27.028	− .524	+ .038	8 20 26.542	355 50 53.22	+ 43.81	45.83	− 3 33 51.20	26.57
105 l. c.	30 21.63	+ .46	+ .027	20 30 22.12	244 30 31.58	−141.39	45.83	+72 10 24.36	. . .
43	37 15.333	− .665	+ .019	8 37 14.687	330 26 46.48	+ 14.05	45.83	+21 50 45.30	. . .
76 Draco. S. P.	49 55.89	+1.77	+ .004	20 49 57.66	254 27 41.77	− 89.26	45.83	+82 8 26.68	25.33
45	59 54.412	− .793	− .008	8 59 53.611	313 25 30.17	− 1.35	45.83	+38 52 17.01	. . .
9 Hydrae	9 8 56.457	− .559	− .018	9 8 55.880	349 31 47.04	+ 34.90	45.83	+ 2 45 23.89	25.46
111 l. c.	19 55.92	+4.85	− .031	21 20 0.74	258 55 8.28	− 75.01	45.83	+86 36 7.44	. . .
o Leonis	35 35.343	− .603	− .050	9 35 34.690	341 55 12.43	+ 25.74	45.83	+10 22 7.66	26.43
Gr. 1586	49 8.15	− 1.62	− .065	9 49 6.47	278 55 44.18	− 36.77	45.83	+73 22 38.42	26.04
π Leonis	54 42.358	− .594	−0.072	9 54 41.692	343 44 29.89	+ 27.78	45.83	+ 8 32 48.16	25.77

c +ˢ.003 *c′* −ˢ.014 ΔT +0ˢ.062 Nadir 134° 57′ 20″.17 *t* 46.7
b − .601 at 7ʰ.9 Rate −ˢ.005 at 8ʰ 0ᵐ Equator 352 17 45 .83 B 25.93
a − .080 ρ −.070 T 47

FEBRUARY 2, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
δ Urs. Min. S. P.	6 5 46.43	+4.38	−1.176	18 5 49.63	258 55 23.68	− 74.91	46.17	+86 36 22.60	25.58
8 Monocerotis	18 15.550	− .588	.188	6 18 13.774	347 38 24.11	+ 32.45	46.17	+ 4 38 49.61	25.53
23 H. Camelop.	28 29.90	−2.16	.198	6 28 26.54	272 37 35.18	− 46.05	46.17	+79 40 57.04	24.41
S Monocerotis	35 15.172	− .616	.205	6 35 13.351	342 17 41.76	+ 26.16	46.17	+ 9 59 38.25	25.67
18 Monocerotis	42 26.564	− .577	.212	6 42 24.775	349 45 30.97	+ 35.16	46.17	+ 2 31 40.04	25.16
51 H. Cephei	51 54.15	−6.56	.222	6 51 46.37	265 5 44.77	− 59.87	46.17	+87 13 1.27	25.27
206	57 35.430	− .415	.228	6 57 33.787	20 3 3.92	+108.30	46.17	−27 47 6.05	. . .
32	7 9 15.08	−2.82	.239	7 9 11.02	269 41 35.08	− 50.92	46.17	+82 37 2.01	. . .
β Can. Min.	21 30.986	− .608	.252	7 21 29.126	343 47 13.30	+ 27.77	46.17	+ 8 30 5.10	26.29
34	46 58.002	− .495	.277	7 46 56.230	5 53 55.09	+ 62.06	46.17	−13 37 10.98	. . .
37	54 38.758	− .704	.285	7 54 36.769	326 36 44.30	+ 10.41	46.17	+25 40 51.46	. . .
167	59 57.042	− .326	.290	7 59 55.426	31 56 42.81	+213.66	46.17	−39 42 30.30	. . .
39	8 6 15.332	− .658	.296	8 6 13.378	334 19 36.04	+ 17.72	46.17	+17 57 52.41	. . .
κ Cephei S. P.	12 18.06	+ .75	.302	20 12 17.51	249 43 7.56	−108.63	46.17	+77 23 32.76	26.76
Br. 1197	20 28.442	− .547	.310	8 20 26.585	355 50 53.96	+ 43.58	46.17	− 3 33 51.37	26.91
105 l. c.	30 23.24	+ .35	.320	20 30 22.27	244 30 32.13	−140.44	46.17	+72 10 25.52	. . .
43	37 16.712	− .680	.327	8 37 14.705	330 26 46.78	+ 13.95	46.17	+21 50 45.44	. . .
76 Draco. S. P.	49 57.45	+1.56	.340	20 49 57.67	254 27 42.03	− 88.69	46.17	+82 8 27.17	26.46
45	59 55.798	− .798	.350	8 59 53.650	313 25 30.56	− 1.35	46.17	+38 52 16.96	. . .
9 Hydrae	9 8 57.850	− .579	.359	9 8 55.912	349 31 47.72	+ 34.74	46.17	+ 2 45 23.71	25.84
111 l. c.	19 57.40	+4.37	.370	21 20 0.40	258 55 7.94	− 74.74	46.17	+86 36 7.03	. . .
o Leonis	35 36.658	− .618	.386	9 35 34.654	341 55 13.03	+ 25.68	46.17	+10 22 7.46	26.86
Gr. 1586	49 9.48	−1.54	.399	9 49 6.54	278 55 43.55	− 36.67	46.17	+73 22 39.29	25.72
π Leonis	54 43.729	− .608	−1.405	9 54 41.716	343 44 30.08	+ 27.70	46.17	+ 8 32 48.39	25.76

c +s.013	c′ −s.004	ΔT −1s.290	Nadir 134° 57′ 20″.17	t 48.5
b − .621		at 8h 0m	Equator 352 17 46 .17	B 25.96
a − .111		ρ −.060		T 48

FEBRUARY 4, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R.A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
δ Urs. Min. S. P.	6 5 50.16	+3.74	−3.650	18 5 50.25	258 55 22.38	− 73.82	46.02	+86 36 22.54	25.98
8 Monocerotis	18 18.114	− .681	.661	6 18 13.772	347 38 24.63	+ 31.99	46.02	+ 4 38 49.40	25.50
23 H. Camelop.	28 32.36	−2.08	.671	6 28 26.61	272 37 34.72	− 45.40	46.02	+79 40 56.70	25.19
S Monocerotis	35 17.693	− .706	.677	6 35 13.310	342 17 42.60	+ 25.79	46.02	+ 9 59 37.63	26.09
18 Monocerotis	42 29.135	− .672	.683	6 42 24.780	349 45 31.71	+ 34.68	46.02	+ 2 31 39.63	25.34
51 H. Cephei	51 55.74	−6.01	.692	6 51 46.04	265 5 44.02	− 59.10	46.02	+87 13 1.10	25.94
206	57 38.001	− .527	.697	6 57 33.777	20 3 5.57	+106.97	46.02	−27 47 6.52	. . .
32	7 9 17.38	−2.68	.707	7 9 10.99	269 41 34.92	− 50.35	46.02	+82 37 1.45	. . .
β Can. Min.	21 33.586	− .700	.718	7 21 29.168	343 47 13.46	+ 27.50	46.02	+ 8 30 5.06	26.11
34	47 0.580	− .598	.741	7 46 56.241	5 53 55.61	+ 61.52	46.02	−13 37 11.11	. . .
37	54 41.336	− .786	.748	7 54 36.802	326 36 44.44	+ 10.31	46.02	+25 40 51.27	. . .
167	59 59.521	− .447	.753	7 59 55.321	31 56 44.02	+211.69	46.02	−39 42 29.69	. . .
39	8 6 17.932	− .744	.759	8 6 13.429	334 19 36.34	+ 17.56	46.02	+17 57 52.12	. . .
κ Cephei S. P.	12 20.91	+ .51	.764	20 12 17.66	249 43 6.22	−107.64	46.02	+77 23 32.56	27.14
Br. 1197	20 31.007	− .644	.771	8 20 26.592	355 50 54.26	+ 43.19	46.02	− 3 33 51.43	26.59
105 l. c.	30 25.84	+ .15	.780	20 30 22.21	244 30 30.08	−139.35	46.02	+72 10 24.71	. . .
43	37 19.276	− .764	.786	8 37 14.726	330 26 46.92	+ 13.85	46.02	+21 50 45.25	. . .
76 Draco. S. P.	50 0.07	+1.23	.798	20 49 57.50	254 27 40.51	− 88.02	46.02	+82 8 26.47	26.32
45	59 58.405	− .868	.807	8 59 53.730	313 25 30.36	− 1.34	46.02	+38 52 17.00	. . .
9 Hydrae	9 9 0.407	− .673	.815	9 8 55.919	349 31 48.12	+ 34.47	46.02	+ 2 45 23.43	25.80
111 l. c.	20 0.74	+3.74	.825	21 20 0.66	258 55 5.89	− 74.16	46.02	+86 36 5.71	. . .
o Leonis	35 39.286	− .707	.839	9 35 34.740	341 55 12.92	+ 25.49	46.02	+10 22 7.61	26.49
Gr. 1586	49 12.00	−1.53	.851	9 49 6.62	278 55 42.86	− 36.45	46.02	+73 22 39.61	25.85
π Leonis	54 46.285	− .700	−3.857	9 54 41.728	343 44 30.57	+ 27.55	46.02	+ 8 32 47.90	25.98

c +s.013	c′ −s.004	ΔT −3s.753	Nadir 134° 57′ 20″.03	t 50.8
b − .678		at 8h 0m	Equator 352 17 46 .02	B 25.85
a − .194		ρ −.054		T 51

FEBRUARY 5, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
δ Urs. Min. S. P.	6 5 51.73	+3.36	−4.855	18 5 50.53	258 55 22.77	− 74.00	46.18	+86 36 22.59	26.16
8 Monocerotis	18 19.378	− .716	.866	6 18 13.796	347 38 24.77	+ 32.06	46.18	+ 4 38 49.35	25.37
23 H. Camelop.	28 33.33	−1.99	.876	6 28 26.46	272 37 34.53	− 45.49	46.18	+79 40 57.14	24.89
S Monocerotis	35 18.943	− .737	.882	6 35 13.324	342 17 42.73	+ 25.84	46.18	+ 9 59 37.61	25.95
18 Monocerotis	42 30.378	− .708	.888	6 42 24.782	349 45 31.76	+ 34.73	46.18	+ 2 31 39.69	25.09
51 H. Cephei	51 56.96	−5.60	.896	6 51 46.46	265 5 43.86	− 59.19	46.18	+87 13 1.51	25.69
32	7 9 18.56	−2.52	.912	7 8 11.13	269 41 34.72	− 50.40	46.18	+82 37 1.86	. . .
β Can. Min.	21 34.793	− .731	.923	7 21 29.139	343 47 13.81	+ 27.52	46.18	+ 8 30 4.85	26.14
34	47 1.844	− .645	.946	7 46 56.253	5 53 56.62	+ 61.53	46.18	−13 37 11.97	. . .
37	54 42.558	− .806	.953	7 54 36.799	326 36 44.92	+ 10.32	46.18	+25 40 50.94	. . .
167	8 0 0.821	− .518	.958	7 59 55.345	31 56 44.15	+211.92	46.18	−39 42 29.89	. . .
39	6 19.125	− .770	.963	8 6 13.392	334 19 36.48	+ 17.58	46.18	+17 57 52.12	. . .
$\varkappa$ Cephei S. P.	12 22.32	+ .40	.969	20 12 17.75	249 43 6.08	−107.85	46.18	+77 23 32.05	26.83
Br. 1197	20 32.250	− .684	.976	8 20 26.590	355 50 54.56	+ 43.28	46.18	− 3 33 51.66	26.55
105 l. c.	30 27.17	+ .07	.985	20 30 22.26	244 30 30.20	−139.58	46.18	+72 10 24.44	. . .
43	37 20.505	− .787	.992	8 37 14.726	330 26 47.07	+ 13.86	46.18	+21 50 45.25	. . .
76 Draco. S. P.	50 1.95	+1.05	−5.003	20 49 58.00	254 27 40.24	− 88.09	46.18	+82 8 25.97	26.04
45	59 59.591	− .882	.012	8 59 53.697	313 25 30.63	− 1.34	46.18	+38 52 16.89	. . .
9 Hydrae	9 9 1.685	− .708	.020	9 8 55.957	349 31 48.41	+ 34.49	46.18	+ 2 45 23.28	25.71
111 l. c.	20 2.34	+3.36	.030	21 20 0.67	258 55 6.24	− 74.19	46.18	+86 36 5.87	. . .
o Leonis	35 40.522	− .738	.044	9 35 34.740	341 55 13.15	+ 25.50	46.18	+10 22 7.53	26.34
Gr. 1586	49 13.24	−1.48	.057	9 49 6.70	278 55 42.85	− 36.45	46.18	+73 22 39.78	25.80
π Leonis	54 47.558	− .731	−5.061	9 54 41.766	343 44 30.90	+ 27.55	46.18	+ 8 32 47.73	25.91

c ˢ.000	*c′* −ˢ.017	ΔT −4ˢ.958	Nadir 134° 57′ 20″.30	*t* 50.7
b − .676		at 8ʰ 0ᵐ	Equator 352 17 46.18	B 25.86
a − .236		ρ −.054		T 50

FEBRUARY 6, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
25 Monocerotis	7 32 12.000	− .682	−6.214	7 32 5.104	356 9 38.24	+ 43.96	46.46	− 3 52 35.74	25.71
167	8 0 2.071	− .518	.237	7 59 55.316	31 56 45.19	+212.82	46.46	−39 42 31.55	. . .
Br. 1147	6 36.43	−1.63	.242	8 6 ——	276 13 40.32	− 40.24	46.46	+76 4 46.38	25.49
$\varkappa$ Cephei S. P.	12 23.44	+ .38	.247	20 12 ——	249 43 6.22	−108.25	46.46	+77 23 31.51	26.86
Br. 1197	20 33.464	− .682	.255	8 20 26.527	355 50 54.71	+ 43.44	46.46	− 3 33 51.69	26.49
41	32 14.650	− .721	.264	8 32 7.665	346 13 5.98	+ 30.46	46.46	+ 6 4 10.02	. . .
ε Hydrae	41 21.792	− .722	.271	8 41 14.799	345 29 3.47	+ 29.55	46.46	+ 6 48 13.44	25.75
α Cancri	52 53.680	− .745	−6.281	8 52 46.654	340 1 33.95	+ 23.43	46.46	+12 15 49.08	25.92

c ˢ.000	*c′* −ˢ.017	ΔT −6ˢ.255	Nadir 134° 57′ 20″.49	*t* 50.1
b − .67		at 8ʰ 22ᵐ	Equator 352 17 46.46	B 25.89
a − .24		ρ −.050		T 49

FEBRUARY 18, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
51 H. Cephei	6 52 11.63	−8.17	−20.278	6 51 43.18	265 5 38.13	− 59.38	44.77	+87 13 6.02	24.50
206	57 54.244	− .356	.283	6 57 33.605	20 3 6.52	+107.48	44.77	−27 47 9.23	. . .
λ Geminorum	7 12 26.174	− .641	.296	7 12 5.237	335 33 34.83	+ 18.87	44.77	+16 43 51.07	25.74
τ Draco. S. P.	17 49.54	+ .72	.301	19 17 29.96	245 29 12.65	−132.93	44.77	+73 9 14.95	23.87
25 Monocerotis	32 25.885	− .512	.314	7 32 5.059	356 9 37.60	+ 43.90	44.77	− 3 52 36.73	25.40
35	47 27.373	− .716	.327	7 47 6.330	325 15 16.49	+ 9.11	44.77	+27 2 19.17	. . .
38	8 2 48.639	−1.473	.341	8 2 26.825	283 31 4.79	− 30.63	44.77	+68 47 10.61	. . .
β Cancri	11 12.058	− .594	.349	8 10 51.115	342 46 45.86	+ 26.47	44.77	+ 9 30 32.44	25.60
Br. 1197	20 47.507	− .514	.358	8 20 26.635	355 50 54.17	+ 43.44	44.77	− 3 33 52.84	26.12
42	33 38.971	− .559	.369	8 33 18.043	348 34 37.98	+ 33.38	44.77	+ 3 42 33.41	. . .
44	39 44.813	− .315	.375	8 39 24.123	25 4 2.48	+137.62	44.77	−32 48 35.33	. . .
76 Draco. S. P.	50 16.13	+2.19	.384	20 49 57.94	254 27 33.89	− 88.45	44.77	+82 8 20.67	24.96
46	9 2 26.608	− .604	.395	9 2 5.609	341 11 56.14	+ 24.76	44.77	+11 5 23.87	. . .
143	26 56.372	− .250	.417	9 26 35.705	32 14 38.18	+217.86	44.77	−40 0 31.27	. . .
o Leonis	35 55.829	− .599	.425	9 35 34.805	341 55 12.19	+ 25.56	44.77	+10 22 7.02	26.13
6 Sextantis	46 19.357	− .512	.436	9 45 58.409	356 2 11.70	+ 43.78	44.77	− 3 45 10.71	26.33
114 l. c.	51 47.05	+ .73	.440	21 51 27.34	245 32 12.92	−132.77	44.77	+73 12 15.38	. . .
47	10 0 23.316	− .458	.447	10 0 2.411	4 50 11.36	+ 59.57	44.77	−12 33 26.16	. . .
24 Cephei S. P.	8 1.60	+ .62	.454	22 7 41.77	244 9 30.94	−143.01	44.77	+71 49 23.16	24.56
145	15 8.10	−4.59	.460	10 14 43.05	267 31 33.53	− 54.66	44.77	+84 47 5.90	. . .
9 H. Draconis	26 41.11	−2.03	.471	10 26 18.61	276 3 15.71	− 40.54	44.77	+76 15 9.60	25.48
l Leonis	44 7.415	− .604	.487	10 43 46.324	341 11 26.20	+ 24.75	44.77	+11 5 53.82	26.06
χ Leonis	59 59.093	− .585	−20.501	10 59 38.007	344 23 12.42	+ 28.31	44.77	+ 7 54 4.04	25.86

c −s.006 c' −s.023 ΔT −20s.396 Nadir 134° 57′ 18″.87 t 51.1
b − .620 at 9h 3m Equator 352 17 44 .77 B 25.97
a − .034 ρ −.054 T 52

FEBRUARY 20, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
51 H. Cephei	6 52 11.04	−6.42	−22.634	6 51 41.99	265 5 39.40	− 59.94	46.00	+87 13 6.54	24.65
λ Geminorum	7 12 28.603	− .732	.654	7 12 5.217	335 33 36.50	+ 19.04	46.00	+16 43 50.46	26.58
τ Draco. S. P.	17 52.43	+ .30	.660	19 17 30.07	245 29 16.76	−134.17	46.00	+73 9 16.59	26.26
25 Monocerotis	32 28.414	− .637	.674	7 32 5.103	356 9 38.95	+ 44.32	46.00	− 3 52 37.27	25.97
35	47 29.801	− .786	.689	7 47 6.326	325 15 18.03	+ 9.21	46.00	+27 2 18.76	. . .
38	8 2 50.867	−1.343	.705	8 2 26.819	283 31 6.44	− 30.96	46.00	+68 47 10.52	. . .
β Cancri	11 14.501	− .693	.713	8 10 51.095	342 46 47.56	+ 26.73	46.00	+ 9 30 31.71	26.48
Br. 1197	20 49.935	− .635	.723	8 20 26.577	355 50 55.54	+ 43.83	46.00	− 3 33 53.37	26.65
42	33 41.421	− .666	.736	8 33 18.019	348 34 38.70	+ 33.66	46.00	+ 3 42 33.64	. . .
44	39 47.284	− .495	.742	8 39 24.047	25 4 1.44	+138.75	46.00	−32 48 34.19	. . .
76 Draco. S. P.	50 19.31	+1.38	.752	20 49 57.94	254 27 35.76	− 89.14	46.00	+82 8 20.62	25.72
46	9 2 29.051	− .698	.764	9 2 5.589	341 11 57.65	+ 24.94	46.00	+11 5 23.41	. . .
143	26 58.864	− .448	.789	9 26 35.627	32 14 37.69	+219.47	46.00	−40 0 31.16	. . .
o Leonis	35 58.301	− .692	.798	9 35 34.811	341 55 13.32	+ 25.73	46.00	+10 22 6.95	26.30
6 Sextantis	46 21.900	− .630	.808	9 45 58.462	356 2 12.52	+ 44.07	46.00	− 3 45 10.59	26.14
47	10 0 25.866	− .591	.822	10 0 2.453	4 50 12.42	+ 59.93	46.00	−12 33 26.35	. . .
49 n. p.	14 36.862	− .736	.837	10 14 13.289	331 55 15.73	+ 15.43	46.00	+20 22 14.84	. . .
9 H. Draconis	26 43.41	−1.72	.849	10 26 18.84	276 3 16.44	− 40.76	46.00	+76 15 10.32	25.50
l Leonis	44 9.922	− .690	.866	10 43 46.366	341 11 26.88	+ 24.90	46.00	+11 5 54.22	25.75
χ Leonis	11 0 1.614	− .674	−22.882	10 59 38.058	344 23 12.67	+ 28.48	46.00	+ 7 54 4.85	25.09

Interrupted by clouds at 10h.

c −s.010 c' −s.027 ΔT −22s.765 Nadir 134° 57′ 19″.88 t 43.8
b − .644 at 9h.0 Rate +s.005 at 9h 3m Equator 352 17 46 .00 B 25.80
a − .180 ρ −.060 T 44

FEBRUARY 27, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
51 H. Cephei . .	6 52 19.18	−7.68	−31.000	6 51 40.50	265 5 34.92	− 58.66	43.41	+87 13 7.15	25.69
λ Geminorum .	7 12 36.818	− .693	.021	7 12 5.104	335 33 33.71	+ 18.63	43.44	+16 43 51.10	26.29
r Draco. S. P. .	18 0.84	+ .58	.026	19 17 30.39	245 29 8.62	−131.23	43.45	+73 9 13.94	25.58
25 Monocerotis .	32 36.550	− .574	.041	7 32 4.935	356 9 37.53	+ 43.35	43.47	− 3 52 37.41	25.82
35 . .	47 38.159	− .764	.056	7 47 6.339	325 15 14.92	+ 9.00	43.50	+27 2 19.58	. . .
38 . .	8 2 59.225	−1.465	.071	8 2 26.689	283 31 1.95	− 30.27	43.52	+68 47 11.84	. . .
β Cancri	11 22.829	− .649	.079	8 10 51.101	342 46 45.25	+ 26.14	43.54	+ 9 30 32.15	26.17
Br. 1197	20 58.171	− .576	.089	8 20 26.506	355 50 54.44	+ 42.86	43.55	− 3 33 53.75	26.68
42 . .	33 49.757	− .617	.102	8 33 18.038	348 34 37.22	+ 32.91	43.57	+ 3 42 33.44	. . .
44 . .	39 55.455	− .393	.108	8 39 23.954	25 4 5.41	+135.71	43.58	− 32 48 37.54	. . .
76 Draco. S. P. .	50 27.58	+1.93	.118	20 49 58.39	254 27 29.52	− 87.26	43.60	+82 8 18.66	26.13
46 . .	9 2 37.372	− .658	.131	9 2 5.583	341 11 55.58	+ 24.44	43.62	+11 5 23.60	. . .
143 . .	27 6.978	− .332	.155	9 26 35.491	32 14 42.90	+215.05	43.66	− 40 0 34.29	. . .
o Leonis	36 6.672	− .655	.164	9 35 34.853	341 55 11.16	+ 25.22	43.68	+10 22 7.30	26.05
6 Sextantis . . .	46 30.235	− .575	.174	9 45 58.486	356 2 11.50	+ 43.18	43.69	− 3 45 10.99	26.07
114 l. c.	51 57.86	+ .58	.180	21 51 27.26	245 32 7.99	−130.91	43.70	+73 12 13.38	. . .
47 . .	10 0 34.159	− .524	.189	10 0 2.446	4 50 12.30	+ 58.71	43.72	− 12 33 37.29	. . .
24 Cephei S. P. .	8 12.57	+ .47	.196	22 7 41.84	244 9 25.44	−140.89	43.73	+71 49 20.82	25.57
145 . .	15 19.18	−4.35	.203	10 14 43.63	267 31 29.41	− 53.84	43.74	+84 47 8.17	. . .
9 H. Draconis . .	26 52.00	−1.99	.215	10 26 18.80	276 3 11.63	− 39.92	43.76	+76 15 12.05	26.08
1 Leonis	44 18.258	− .659	.232	10 43 46.367	341 11 25.48	+ 24.40	43.79	+11 5 53.91	26.13
χ Leonis	11 0 10.001	− .640	−31.248	10 59 38.113	344 23 12.43	+ 27.95	43.82	+ 7 54 3.44	26.44

c −ˢ.006 *c′* −ˢ.023 ΔT −31ˢ.131 Nadir 134° 57′ 17″.41 at 9ʰ.0 *t* 57.9
b − .651 at 9ʰ 3ᵐ Equator 352 17 43 .62 at 9 .0 B 25.99
a − .091 *ρ* − .060 Rate +0″.10 hourly T 57

FEBRUARY 28, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
51 H. Cephei . .	6 52 18.18	−6.22	−32.289	6 51 39.67	265 5 36.74	− 59.06	45.47	+87 13 7.79	25.21
λ Geminorum .	7 12 38.153	− .704	.306	7 12 5.143	335 33 35.37	+ 18.74	45.40	+16 43 51.29	26.06
r Draco. S. P. .	18 2.55	+ .29	.311	19 17 30.53	245 29 10.40	−131.87	45.38	+73 9 13.15	24.97
25 Monocerotis .	32 37.921	− .610	.324	7 32 4.987	356 9 39.20	+ 43.56	45.33	− 3 52 37.43	25.74
35 . .	47 39.287	− .757	.336	7 47 6.194	325 15 16.03	+ 9.04	45.28	+27 2 20.21	. . .
38 . .	8 3 0.183	−1.298	.348	8 2 26.537	283 31 2.97	− 30.41	45.23	+68 47 12.67	. . .
β Cancri	11 24.029	− .664	.356	8 10 51.009	342 46 47.14	+ 26.26	45.21	+ 9 30 31.81	26.48
Br. 1197	20 59.550	− .606	.365	8 20 26.579	355 50 55.89	+ 43.07	45.17	− 3 33 53.79	26.64
42 . .	33 50.964	− .638	.374	8 33 17.952	348 34 38.41	+ 33.08	45.13	+ 3 42 33.64	. . .
44 . .	39 56.863	− .466	.380	8 39 24.017	25 4 5.28	+136.38	45.11	− 32 48 36.55	. . .
76 Draco. S. P. .	50 29.62	+1.33	.388	20 49 58.56	254 27 30.12	− 87.60	45.07	+82 8 17.45	25.40
46 . .	9 2 38.672	− .662	.398	9 2 5.612	341 11 56.18	+ 24.51	45.03	+11 5 24.34	. . .
o Leonis	36 7.943	− .661	.426	9 35 34.856	341 55 12.81	+ 25.26	44.92	+10 22 6.85	26.49
6 Sextantis . . .	46 31.471	− .600	.435	9 45 58.436	356 2 12.87	+ 43.24	44.89	− 3 45 11.22	26.18
114 l. c.	51 59.34	+ .29	.439	21 51 27.19	245 32 8.29	−131.07	44.87	+73 12 12.35	. . .
47 . .	10 0 35.487	− .561	.446	10 0 2.480	4 50 13.82	+ 58.75	44.84	− 12 33 27.73	. . .
24 Cephei S. P. .	8 14.08	+ .20	.453	22 7 41.83	244 9 25.96	−140.94	44.82	+71 49 20.20	25.25
145 . .	15 19.84	−3.44	.459	10 14 43.94	267 31 29.14	− 53.85	44.79	+84 47 9.50	. . .
9 H. Draconis . .	26 52.99	−1.65	.468	10 26 18.87	276 3 12.00	− 39.91	44.75	+76 15 12.66	25.76
1 Leonis	44 19.478	− .658	.483	10 43 46.337	341 11 26.05	+ 24.37	44.70	+11 5 54.28	25.74
χ Leonis	11 0 11.208	− .642	−32.496	10 59 38.070	344 23 13.34	+ 27.88	44.64	+ 7 54 3.42	26.42

Interrupted by clouds at 9ʰ.5. Thin clouds at intervals.

c −ˢ.003 *c′* −ˢ.020 ΔT −32ˢ.398 Nadir 134° 57′ 18″.81 at 9ʰ.1 *t* 53.1
b − .622 at 9ʰ.1 Rate +ˢ.006 at 9ʰ 3ᵐ Equator 352 17 45 .04 at 9 .0 B 25.81
a − .169 *ρ* − .050 Rate − 0″.20 hourly T 53

MARCH 4, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
Br. 1147	8 7 6.53	−1.47	−37.056	8 6 28.00	276 13 32.61	− 39.95	45.54	+76 4 52.88	25.37
κ Cephei S. P.	12 55.63	+ .22	.062	20 12 18.79	249 42 55.86	−107.50	45.54	+77 23 22.82	25.37
Br. 1197	21 4.257	− .679	.069	8 20 26.509	355 50 56.08	+ 43.14	45.54	− 3 33 53.68	25.54
α Cancri	53 24.459	− .730	.098	8 52 46.631	340 1 33.45	+ 23.33	45.54	+12 15 48.76	25.46
9 Hydrae	9 9 33.807	− .699	.113	9 8 55.995	349 31 50.00	+ 34.36	45.54	+ 2 45 21.18	25.46
143	27 13.214	− .544	.128	9 26 35.542	32 14 43.97	+216.22	45.54	−40 0 34.65	. . .
o Leonis	36 12.729	− .723	.136	9 35 34.870	341 55 13.31	+ 25.36	45.54	+10 22 6.87	25.75
6 Sextantis	46 36.264	− .679	.146	9 45 58.439	356 2 14.23	+ 43.45	45.54	− 3 45 12.14	26.06
114 l. c.	52 4.50	− .02	.151	21 51 27.33	245 32 8.35	−131.78	45.54	+73 12 11.03	. . .
48	10 11 8.108	−1.113	.168	10 10 29.827	286 40 17.78	− 26.85	45.54	+65 37 54.61	. . .
9 H. Draconis	26 57.56	−1.48	.182	10 26 18.90	———			+76 15 ———	. . .
118 l. c.	30 55.50	+ .10	.186	22 30 18.41	248 0 45.49	−116.65	45.54	+75 41 3.30	. . .
50	41 17.642	− .713	.195	10 40 39.734	345 21 49.45	+ 29.31	45.54	+ 6 55 26.78	. . .
147	55 19.138	− .634	.208	10 54 41.296	10 1 7.66	+ 71.37	45.54	−17 44 33.49	. . .
χ Leonis	11 0 16.072	− .716	.212	10 59 38.144	344 23 14.11	+ 28.19	45.54	+ 7 54 3.24	25.82
π Cephei S. P.	5 3.98	+ .05	.217	23 4 26.81	247 8 59.38	−121.70	45.54	+74 49 12.14	25.33
σ Leonis	16 23.292	− .711	.227	11 15 45.354	345 41 9.65	+ 29.71	45.54	+ 6 36 6.18	25.75
n. p. 53	22 6.400	− .702	.232	11 21 28.466	348 42 16 03	+ 33.40	45.54	+ 3 34 56.11	. . .
122 l. c.	27 50.74	+2.78	.237	23 27 16.28	259 2 45.90	− 73.72	45.54	+86 43 46.64	. . .
124 l. c.	50 14.62	.00	.257	23 49 37.36	246 9 32.52	−128.02	45.54	+73 49 38.96	. . .
o Virginis	12 0 31.636	− .720	.266	11 59 53.650	342 58 34.20	+ 26.64	45.54	+ 9 18 44.70	25.60
4 H. Draconis	8 4.84	−1.62	.273	12 7 25.95	274 6 41.94	− 43.24	45.54	+78 11 46.84	25.68
η Virginis	15 11.892	− .700	.280	12 14 33.912	352 22 20.51	+ 38.28	45.54	− 0 5 13.25	25.55
58	30 17.427	− .769	.293	12 29 39.365	329 5 22.11	+ 12.61	45.54	+23 12 10.82	. . .
60	47 15.323	− .789	.308	12 46 37.226	324 11 11.88	+ 8.14	45.54	+28 6 25.52	. . .
43 H. Cephei S. P.	54 39.69	+1.96	.316	0 54 4.33	258 0 54.64	− 76.79	45.54	+85 41 52.31	24.87
9 Virginis	13 5 10.492	− .675	−37.325	13 4 32.492	357 15 56.35	+ 45.59	45.54	− 4 58 56.40	25.83

c s.000 c' −s.017 ΔT −37s.187 Nadir 134° 57′ 19″.86 t 51.1
b − .645 at 10h 32m Equator 352 17 45 .54 B 25.84
a − .265 ρ −.054 T 52

APRIL 2, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
9 Hydrae	9 10 12.656	− .569	−76.390	9 8 55.697	349 31 50.28	+ 34.98	45.74	+ 2 45 20.48	25.45
1 H. Draconis	23 36.92	−2.87	.404	9 22 17.65	270 30 55.50	− 49.75	45.77	+81 47 40.02	25.55
β Cephei S. P.	28 30.98	+ .37	.409	21 27 14.94	242 26 6.46	−159.50	45.78	+70 5 41.18	25.90
o Leonis	36 51.742	− .615	.417	9 35 34.710	341 55 13.17	+ 25.83	45.79	+10 22 6.79	26.19
Gr. 1586	50 24.04	−1.65	.430	9 49 5.96	278 55 29.04	− 36.92	45.81	+73 22 53.69	26.36
π Leonis	55 58.864	− .605	.436	9 54 41.823	343 44 31.11	+ 27.89	45.82	+ 8 32 46.81	25.30
48	10 11 47.034	−1.271	.452	10 10 29.311	286 40 11.34	− 27.30	45.85	+65 38 1.81	. . .
118 l. c.	31 35.43	+ .72	.472	22 30 19.68	248 0 40.66	−118.52	45.88	+75 40 56.24	. . .
50	41 56.784	− .601	.482	10 40 39.701	345 21 49.46	+ 29.78	45.90	+ 6 55 26.66	. . .
147	55 58.316	− .466	.496	10 54 41.354	10 1 9.74	+ 72.51	45.92	−17 44 36.33	. . .
χ Leonis	11 0 55.314	− .607	.501	10 59 38.206	344 23 14.24	+ 28.64	45.93	+ 7 54 3.05	26.08
π Cephei S. P.	5 43.40	+ .62	.506	23 4 27.51	247 8 54.32	−123.64	45.94	+74 49 4.74	26.18
σ Leonis	17 2.541	− .602	.517	11 15 45.422	345 41 9.70	+ 30.18	45.95	+ 6 36 6.07	25.65
n. p. 53	22 45.684	− .586	.523	11 21 28.575	348 42 16.95	+ 33.93	45.96	+ 3 34 55.08	. . .
122 l. c.	28 29.75	+4.93	.529	23 27 18.20	259 2 39.87	− 74.90	45.98	+86 43 38.99	. . .
124 l. c.	50 53.72	+ .52	.551	23 49 37.69	246 9 28.23	−130.12	46.01	+73 49 32.10	. . .
o Virginis	12 1 11.050	− .620	.561	11 59 53.869	342 58 34.17	+ 27.07	46.03	+ 9 18 44.79	25.99
4 H. Draconis	8 45.04	−2.05	.569	12 7 26.42	274 6 35.09	− 43.96	46.04	+78 11 54.91	26.18
η Virginis	15 51.334	− .572	.576	12 14 34.186	352 22 21.32	+ 38.92	46.05	− 0 5 14.19	25.12
58	30 56.905	− .702	.591	12 29 39.612	329 5 19.90	+ 12.82	46.08	+23 12 13.36	. . .
60	47 55.000	− .734	.608	12 46 37.658	324 11 8.21	+ 8.27	46.11	+28 6 29.63	. . .
43 H. Cephei S. P.	55 14.92	+3.51	.615	0 54 1.82	258 0 48.26	− 77.99	46.12	+85 41 44.15	25.20
9 Virginis	13 5 50.063	− .552	−76.626	13 4 32.885	357 15 58.48	+ 46.28	46.14	− 4 58 58.62	25.89

c +s.006 c' −s.011 ΔT −1m 16s.504 Nadir 134° 57′ 20″.24 at 11h.2 t 42.7
b − .628 at 11h 3m Equator 352 17 45 .93 at 11 .0 B 25.83
a − .089 at 10h.8 Rate −s.01 ρ −.060 Rate +0″.10 hourly T 43

APRIL 5, 1895. CIR. W, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
♑ Hydrae . . .	9 10 16.499	− .544	−80.290	9 8 55.665	349 31 50.58	+ 35.36	46.17	+ 2 45 20.23	26.19
1 H. Draconis .	23 40.30	−2.65	.304	9 22 17.35	270 30 55.76	− 50.26	46.17	+81 47 40.67	25.91
β Cephei S. P. .	28 35.18	+ .33	.309	21 27 15.20	242 26 9.14	−161.11	46.17	+70 5 41.86	27.54
o Leonis	36 55.593	− .585	.317	9 35 34.691	341 55 13.17	+ 26.09	46.17	+10 22 6.91	26.65
Gr. 1586	50 27.74	−1.54	.330	9 49 5.87	278 55 29.02	− 37.28	46.17	+73 22 54.43	26.66
π Leonis	56 2.707	− .575	.336	9 54 41.796	343 44 31.20	+ 28.17	46.17	+ 8 32 46.80	25.86
48 . .	10 11 50.841	−1.198	.352	10 10 29.291	286 40 10.64	− 27.59	46.17	+65 38 3.12	. . .
118 l. c.	31 39.41	+ .67	.372	22 30 19.71	248 0 42.01	−119.77	46.17	+75 40 56.07	. . .
50 . .	42 0.670	− .567	.382	10 40 39.721	345 21 49.64	+ 30.09	46.17	+ 6 55 26.44	. . .
147 . .	56 2.123	− .435	.396	10 54 41.292	10 1 10.01	+ 73.26	46.17	−17 44 37.10	. . .
χ Leonis	11 0 59.142	− .572	.401	10 59 38.169	344 23 14.10	+ 28.94	46.17	+ 7 54 3.13	26.51
π Cephei S. P. .	5 47.47	+ .61	.406	23 4 27.67	247 8 54.80	−124.83	46.17	+74 49 3.80	26.40
σ Leonis	17 6.441	− .564	.417	11 15 45.460	345 41 9.40	+ 30.50	46.17	+ 6 36 6.27	25.94
53 . .	22 49.499	− .548	.423	11 21 28.528	348 42 16.60	+ 34.28	46.17	+ 3 34 55.29	. . .
122 l. c.	28 33.91	+4.82	.429	23 27 18.30	259 2 39.78	− 75.67	46.17	+86 43 37.94	. . .
124 l. c.	50 57.66	+ .52	.451	23 49 37.73	246 9 29.24	−131.41	46.17	+73 49 31.66	. . .
o Virginis . . .	12 1 14.950	− .579	.461	11 59 53.910	342 58 33.97	+ 27.33	46.17	+ 9 18 44.87	26.44
4 H. Draconis .	8 48.90	−1.98	.469	12 7 26.45	274 6 34.71	− 44.37	46.17	+78 11 55.83	26.55
η Virginis . . .	15 55.149	− .530	.476	12 14 34.143	352 22 21.35	+ 39.26	46.17	− 0 5 14.44	25.73
58 . .	31 0.819	− .659	.491	12 29 39.669	329 5 19.44	+ 12.92	46.17	+23 12 13.81	. . .
60 . .	47 58.865	− .690	.508	12 46 37.667	324 11 7.95	+ 8.33	46.17	+28 6 29.89	. . .
43 H. Cephei S.P.	55 18.75	+3.54	.515	0 54 1.78	258 0 47.71	− 78.58	46.17	+85 41 42.96	25.32
♍ Virginis . . .	13 5 53.949	− .504	−80.526	13 4 32.919	357 15 57 79	+ 46.63	46.17	− 4 58 58.25	25.78

c +ˢ.010 *c′* −ˢ.007 ΔT −1ᵐ 20ˢ.403 Nadir 134° 57′ 20″.03 *t* 41.7
b −.597 at 11ʰ 3ᵐ Equator 352 17 46 .14 B 26.02
a −.080 ρ −.060 T 41

APRIL 8, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
♑ Hydrae . . .	9 10 20.334	− .579	−84.080	9 8 55.675	349 31 49.33	+ 34.58	44.54	+ 2 45 20.63	25.07
1 H. Draconis .	23 44.11	−2.84	.094	9 22 17.18	270 30 53.25	− 49.17	44.61	+81 47 40.53	25.85
β Cephei S. P. .	28 38.95	+ .36	.099	21 27 15.21	242 26 3.79	−157.61	44.64	+70 5 41.54	26.89
o Leonis	36 59.328	− .621	.107	9 35 34.600	341 55 12.32	+ 25.53	44.68	+10 22 6.83	26.10
Gr. 1586	50 31.51	−1.64	.121	9 49 5.75	278 55 26.36	− 36.51	44.74	+73 22 54.89	26.02
π Leonis	56 6.492	− .611	.126	9 54 41.755	343 44 29.89	+ 27.59	44.77	+ 8 32 47.29	24.75
48 . .	10 11 54.577	−1.259	.142	10 10 29.176	286 40 8.90	− 27.05	44.85	+65 38 3.00	. . .
118 l. c.	31 43.40	+ .70	.162	22 30 19.94	248 0 37.36	−117.56	44.95	+75 40 54.85	. . .
50 . .	42 4.456	− .603	.172	10 40 39.681	345 21 47.84	+ 29.57	45.00	+ 6 55 27.59	. . .
147 . .	56 5.973	− .475	.186	10 54 41.312	10 1 9.84	+ 72.06	45.07	−17 44 36.83	. . .
χ Leonis	11 1 2.942	− .609	.191	10 59 38.142	344 23 13.11	+ 28.47	45.10	+ 7 54 3.52	25.49
π Cephei S. P.	5 51.36	+ .60	.196	23 4 27.76	247 8 51.32	−123.00	45.12	+74 49 3.20	25.80
σ Leonis	17 10.251	− .603	.207	11 15 45.441	345 41 8.26	+ 30.04	45.18	+ 6 36 6.88	24.72
53 . .	22 53.320	− .588	.213	11 21 28.519	348 42 15.62	+ 33.77	45.21	+ 3 34 55.82	. . .
122 l. c.	28 38.44	+4.84	.219	23 27 19.06	259 2 36.49	− 74.65	45.24	+86 43 36.60	. . .
124 l. c.	51 1.58	+ .49	.241	23 49 37.83	246 9 25.70	−129.79	45.35	+73 49 30.56	. . .
o Virginis . . .	12 1 18.728	− .617	.251	11 59 53.860	342 58 33.67	+ 27.01	45.40	+ 9 18 44.72	26.04
4 H. Draconis .	8 52.65	−2.00	.259	12 7 26.39	274 6 33.10	− 43.86	45.44	+78 11 56.20	26.38
η Virginis . . .	15 59.020	− .572	.266	12 14 34.182	352 22 20.98	+ 38.84	45.47	− 0 5 14.35	24.89
58 . .	31 4.669	− .693	.281	12 29 39.695	329 5 19.04	+ 12.80	45.55	+23 12 13.71	. . .
60 . .	48 2.700	− .723	.298	12 46 37.679	324 11 7.03	+ 8.26	45.63	+28 6 30.34	. . .
43 H. Cephei S. P.	55 23.06	+3.35	.305	0 54 2.11	258 0 45.70	− 77.89	45.67	+85 41 42.14	24.67
♍ Virginis . . .	13 5 57.777	− .552	−84.316	13 4 32.909	357 15 58.44	+ 46.20	45.72	− 4 58 58.92	25.59

c −ˢ.003 *c′* −ˢ.020 ΔT −1ᵐ 24ˢ.194 Nadir 134° 57′ 19″.85 at 11ʰ.3 *t* 44.9
b −.613 at 11ʰ.3 Rate +ˢ.004 at 11ʰ 3ᵐ Equator 352 17 45 .10 at 11 .0 B 25.81
a −.096 at 10 .9 Rate −.01 ρ −.060 Rate +0″.30 hourly T 47

APRIL 10, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
6 Sextantis	9 47 25.427	− .639	−86.621	9 45 58.167	356 2 16.03	+ 44.95	46.91	− 3 45 14.07	26.12
π Leonis	56 9.035	− .680	.630	9 54 41.725	343 44 31.75	+ 28.34	46.91	+ 8 32 46.82	25.54
24 Cephei S. P.	10 9 10.07	− .01	.643	22 7 43.42	244 9 24.57	−146.79	46.91	+71 49 10.87	25.40
145	16 9.84	−2.88	.650	10 14 40.31	267 31 23.32	− 56.11	46.91	+84 47 19.70	. . .
9 H. Draconis	27 45.85	−1.46	.602	10 26 17.73	276 3 4.79	− 41.69	46.91	+76 15 23.81	24.82
l Leonis	45 13.742	− .685	.679	10 43 46.378	341 11 26.67	+ 25.49	46.91	+11 5 54.75	25.52
51	56 37.577	− .661	.691	10 55 10.225	348 6 30.79	+ 33.78	46.91	+ 4 10 42.34	. . .
52	11 3 2.213	− .654	.697	11 1 34.862	349 45 50.23	+ 35.95	46.91	+ 2 31 20.73	. . .
54	24 1.684	− .656	.718	11 22 34.310	348 51 19.56	+ 34.74	46.91	+ 3 25 52.61	. . .
υ Leonis	33 3.820	− .644	.727	11 31 36.449	352 31 58.82	+ 39.77	46.91	− 0 14 51.68	25.93
148	40 55.723	− .587	.735	11 39 28.401	10 2 50.83	+ 73.96	46.91	−17 46 17.88	. . .
55	48 26.196	− .794	.742	11 46 58.660	313 49 37.54	− 1.02	46.91	+38 28 10.39	. . .
56	56 59.150	− .666	.751	11 55 31.733	345 5 30.55	+ 30.02	46.91	+ 7 11 46.34	. . .
ο Virginis	12 1 21.314	− .673	.755	11 59 53.886	342 58 34.00	+ 27.52	46.91	+ 9 18 45.39	25.78
4 H. Draconis	8 54.77	−1.57	.763	12 7 26.44	274 6 34.22	− 44.69	46.91	+78 11 57.38	26.08
57	16 55.87	−7.24	.770	12 15 21.86	264 1 55.81	− 63.61	46.91	+88 16 54.71	. . .
59	32 52.370	− .624	.787	12 31 24.959	357 32 26.24	+ 47.50	46.91	− 5 15 26.83	. . .
21 Cassiop. S. P.	40 3.93	+ .08	.794	0 38 37.22	246 44 46.77	−128.53	46.91	+74 24 51.33	24.94
149	49 6.684	− .496	.803	12 47 39.385	31 50 55.84	+217.81	46.91	−39 36 46.74	. . .
ε Virginis	58 26.742	− .676	.812	12 56 59.254	340 46 12.42	+ 25.02	46.91	+11 31 9.47	25.50
9 Virginis	13 6 0.406	− .623	.820	13 4 32.963	357 15 58 24	+ 47.06	46.9	− 4 58 58.39	25.32
62	14 24.159	− .582	.828	13 12 56.749	10 0 28.66	+ 73.88	46.91	−17 43 55.63	. . .
Gr. 2001	25 1.98	−1.25	.839	13 23 33.89	279 22 21.98	− 37.01	46.91	+72 56 1.94	25.22
40 Cassiop. S. P.	31 29.64	.00	.846	1 30 2.79	244 50 31.26	−141.85	46.91	+72 30 22.50	24.19
64	37 35.614	− .611	.852	13 35 8.151	0 27 34.67	+ 52.60	46.91	− 8 10 40.36	. . .
τ Virginis	57 47.863	− .641	−86.872	13 56 20.350	350 14 18.49	+ 36.59	46.91	+ 2 2 51.83	25.01

c s.000 c' −s.017 ΔT −1m 26s.739 Nadir 134° 57′ 21″.32 t 35.3
b −.609 at 11h.7 Rate +s.005 at 11h 45m Equator 352 17 46 .91 B 25.87
a −.235 ρ −.060 T 37

APRIL 11, 1895. CIR. W, WT. 5, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
6 Sextantis	9 47 26.599	− .583	−87.829	9 45 58.187	356 2 14.60	+ 44.19	45.45	− 3 45 13.34	25.41
π Leonis	56 10.164	− .641	.836	9 54 41.687	343 44 30.68	+ 27.86	45.45	+ 8 32 46 91	25.51
24 Cephei S. P.	10 9 11.04	+ .28	.848	22 7 43.47	244 9 21.23	−144.31	45.45	+71 49 11.47	26.18
n. p. 49	15 41.725	− .700	.854	10 14 13.171	331 55 12.17	+ 15.47	45.45	+20 22 17.81	. . .
9 H. Draconis	27 47.19	− 1.75	.865	10 26 17.58	276 3 2.77	− 40.90	45.45	+76 15 23.58	25.29
l Leonis	45 14.928	− .653	.880	10 43 46.395	341 11 25.62	+ 24.99	45.45	+11 5 54.84	25 52
51	56 38.749	− .620	.891	10 55 10.238	348 6 29.82	+ 33.12	45.45	+ 4 10 42.51	. . .
52	11 3 3.384	− .612	.897	11 1 34.875	349 45 49.14	+ 35.25	45.45	+ 2 31 21.06	. . .
54	24 2.884	− .617	.916	11 22 34.351	348 51 18.48	+ 34.09	45.45	+ 3 25 52.88	. . .
υ Leonis	33 4.949	− .599	.924	11 31 36.426	352 31 57.97	+ 39.01	45.45	− 0 14 51.53	25.82
148	40 56.852	− .516	.931	11 39 28.405	10 2 50.05	+ 72.50	45.45	−17 46 17.10	. . .
55	47 27.425	− .817	.936	11 46 58.672	313 49 35.62	− 0.99	45.45	+38 28 10.82	. . .
56	57 0.307	− .634	.945	11 55 31.728	345 5 29.46	+ 29.40	45.45	+ 7 11 46.59	. . .
ο Virginis	12 1 22.464	− .644	.949	11 59 53.871	352 58 33.44	+ 26.95	45.45	+ 9 18 45.06	26.21
4 H. Draconis	8 56.19	− 1.95	.956	12 7 26.28	274 6 31.31	− 43.70	45.45	+78 11 57.90	25.89
57	17 0.83	−10.10	.963	12 15 22.77	264 1 53.30	− 62.28	45.45	+88 16 54.43	. . .
59	32 53.527	− .576	.978	12 31 24.973	357 32 26.63	+ 46.51	45.45	− 5 15 27.69	. . .
21 Cassiop. S. P.	40 4.81	+ .44	.983	0 38 37.27	246 44 43.56	−125.85	45.45	+74 24 52.26	26.20
149	49 7.741	− .387	.992	12 47 39.362	31 50 57.07	+213.25	45.45	−39 36 44.87	. . .
ε Virginis	58 27.942	− .655	−88.000	12 56 59.287	340 46 11.79	+ 24.52	45.45	+11 31 9.14	25.97
9 Virginis	13 6 1.549	− .577	.007	13 4 32.963	357 15 58.25	+ 46.12	45.45	− 4 58 58.92	25.89
62	14 25.344	− .516	.014	13 12 56.814	10 0 28.38	+ 72.40	45.45	−17 43 55.33	. . .
Gr. 2001	25 3.64	− 1.52	.024	13 23 34.10	279 22 20.00	− 36.27	45.45	+72 56 1.72	25.81
40 Cassiop. S. P.	31 30.59	+ .33	.030	1 30 2.89	244 50 28.35	−139.02	45.45	+72 30 23.88	25.89
64	37 36.771	− .563	.036	13 36 8.172	0 27 34.49	+ 51.57	45.45	− 8 10 40.61	. . .
τ Virginis	57 49.020	− .610	−88.054	13 56 20.356	350 14 17.41	+ 35.88	45.45	+ 2 2 52.16	24.78

c −s.003 c' −s.020 ΔT −1m 27s.934 Nadir 134° 57′ 19″.81 t 46.0
b −.623 at 11h 45m Equator 352 17 45 .45 B 25.96
a −.141 ρ −.054 T 47

APRIL 15, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
6 Sextantis	9 47 31.320	− .424	−92.760	9 45 58.136	356 2 14.34	+ 43.96	44.25	− 3 45 14.05	25.86
π Leonis	56 14.992	− .502	.768	9 54 41.722	343 44 29.74	+ 27.72	44.28	+ 8 32 46.82	25.47
24 Cephei S. P.	10 9 15.86	+ .71	.781	22 7 43.79	244 9 18.77	−143.56	44.32	+71 49 10.89	25.89
49	15 46.518	− .582	.788	10 14 13.148	331 55 11.19	+ 15.39	44.35	+20 22 17.77	. . .
9 H. Draconis	27 52.15	− 1.96	.800	10 26 17.39	276 3 1.15	− 40.70	44.39	+76 15 23.94	25.47
1 Leonis	45 19.692	− .518	.817	10 43 46.357	341 11 24.69	+ 24.88	44.44	+11 5 54.87	25.44
51	56 43.591	− .474	.829	10 55 10.288	348 6 29.14	+ 32.98	44.48	+ 4 10 42.36	. . .
52	11 3 8.213	− .462	.835	11 1 34.916	349 45 48.73	+ 35.11	44.50	+ 2 31 20.66	. . .
54	24 7.649	− .468	.856	11 22 34.325	348 51 18.10	+ 33.93	44.57	+ 3 25 52.54	. . .
υ Leonis	33 9.741	− .446	.865	11 31 36.430	352 31 57.43	+ 38.85	44.60	− 0 14 51.68	25.74
148	41 1.641	− .335	.873	11 39 28.433	10 2 49.72	+ 72.25	44.63	−17 46 17.34	. . .
55	48 32.282	− .729	.881	11 46 58.672	313 49 34.48	− 0.99	44.65	+38 28 11.16	. . .
56	57 5.178	− .490	.889	11 55 31.799	345 5 28.41	+ 29.34	44.68	+ 7 11 46.93	. . .
o Virginis	12 1 27.292	− .504	.893	11 59 53.895	342 58 32.20	+ 26.90	44.70	+ 9 18 45.60	25.68
4 H. Draconis	9 1.17	− 2.16	.901	12 7 26.11	274 6 29.66	− 43.68	44.72	+78 11 58.74	25.93
57	17 7.03	−12.48	.909	12 15 21.64	264 1 51.51	− 62.18	44.75	+88 16 55.42	. . .
59	32 58.399	− .415	.925	12 31 25.059	357 32 25.36	+ 46.45	44.80	− 5 15 27.01	. . .
21 Cassiop. S. P.	40 9.44	+ .85	.932	0 38 37.36	246 44 42.07	−125.68	44.83	+74 24 51.56	26.35
149	49 12.548	− .166	.941	12 47 39.441	31 50 57.40	+213.01	44.86	− 39 36 45.55	. . .
ε Virginis	58 32.771	− .517	.951	12 56 59.303	340 46 10.62	+ 24.50	44.89	+11 31 9.77	25.44
62	13 14 30.180	− .338	.967	13 12 56.875	10 0 27.57	+ 72.34	44.94	−17 43 54.97	. . .
Gr. 2001	25 8.58	− 1.60	.977	13 23 34.00	279 22 17.70	− 36.25	44.98	+72 56 3.53	24.98
40 Cassiop. S. P.	31 35.18	+ .69	.986	1 30 2.88	244 50 26.36	−138.94	45.00	+72 30 22.42	25.30
64	37 41.650	− .398	.990	13 36 8.262	0 27 34.25	+ 51.54	45.02	− 8 10 40.77	. . .
τ Virginis	57 53.877	− .458	−93.010	13 56 20.409	350 14 17.08	+ 35.86	45.09	+ 2 2 52.15	24.71
ι Virginis	14 12 6.156	− .414	.024	14 10 32.718	357 47 14.41	+ 46.97	45.13	− 5 30 16.25	25.90

c +ˢ.003 c' −ˢ.014 ΔT −1ᵐ 32ˢ.886 Nadir 134° 57′ 19″.14 at 11ʰ.8 t 47.2
$\dot{b}$ − .557 at 11ʰ.8 Rate +ˢ.004 at 11ʰ 54ᵐ Equator 352 17 44 .68 at 11 .9 B 25.95
a + .015 at 12 .0 Rate − .005 ρ − .060 Rate +0″.20 hourly T 48

APRIL 17, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
6 Sextantis	9 47 33.963	− .547	−95.233	9 45 58.183	356 2 15.76	+ 43.89	45.43	− 3 45 14.22	26.14
π Leonis	56 17.514	− .608	.241	9 54 41.665	343 44 30.87	+ 27.67	45.43	+ 8 32 46.89	25.53
24 Cephei S. P.	10 9 18.77	+ .35	.254	22 7 43.87	244 9 18.56	−143.33	45.43	+71 49 9.80	25.11
49	15 49.025	− .670	.262	10 14 13.093	331 55 11.90	+ 15.37	45.43	+20 22 18.16	. . .
9 H. Draconis	27 54.29	− 1.76	.273	10 26 17.26	276 3 1.31	− 40.64	45.43	+76 15 24.76	25.13
1 Leonis	45 22.221	− .617	.290	10 43 46.314	341 11 25.76	+ 24.85	45.43	+11 5 54.82	25.66
51	56 46.156	− .582	.302	10 55 10.272	348 6 30.56	+ 32.94	45.43	+ 4 10 41.93	. . .
52	11 3 10.727	− .573	.308	11 1 34.846	349 45 49.59	+ 35.06	45.43	+ 2 31 20.78	. . .
54	24 10.177	− .576	.329	11 22 34.272	348 51 18.96	+ 33.88	45.43	+ 3 25 52.59	. . .
υ Leonis	33 12.277	− .557	.338	11 31 36.382	352 31 58.22	+ 38.79	45.43	− 0 14 51.58	25.76
148	41 4.152	− .470	.346	11 39 28.336	10 2 50.99	+ 72.11	45.43	−17 46 17.67	. . .
55	48 34.739	− .782	.354	11 46 58.603	313 49 34.89	− 0.99	45.43	+38 28 11.53	. . .
56	57 7.720	− .592	.362	11 55 31.766	345 5 29.19	+ 29.26	45.43	+ 7 11 46.98	. . .
o Virginis	12 1 29.878	− .603	.366	11 59 53.909	342 58 33.10	+ 26.83	45.43	+ 9 18 45.50	25.96
4 H. Draconis	9 3.36	− 1.94	.374	12 7 26.05	274 6 29.37	− 43.56	45.43	+78 11 59.62	25.64
57	17 6.17	− 10.22	.382	12 15 20.57	264 1 50.90	− 61.99	45.43	+88 16 56.52	. . .
59	33 0.934	− .529	.398	12 31 25.007	357 32 26.66	+ 46.28	45.43	− 5 15 27.51	. . .
21 Cassiop. S. P.	40 12.38	+ .49	.405	0 38 37.46	246 44 40.43	−125.24	45.43	+74 24 49.66	25.15
149	49 15.170	− .331	.414	12 47 39.425	31 51 0.15	+212.32	45.43	− 39 36 47.04	. . .
ε Virginis	58 35.342	− .608	.424	12 56 59.310	340 46 11.49	+ 24.42	45.43	+11 31 9.52	25.89
62	13 14 32.780	− .466	.440	13 12 56.874	10 0 29.63	+ 72.01	45.43	−17 43 56.21	. . .
Gr. 2001	25 11.03	− 1.47	.450	13 23 34.11	279 22 17.40	− 36.05	45.43	+72 56 4.08	25.08
40 Cassiop. S. P.	31 38.10	+ .38	.457	1 30 3.02	244 50 25.19	−138.11	45.43	+72 30 21.65	25.10
64	37 44.328	− .511	.463	13 36 8.354	0 27 35.00	+ 51.22	45.43	− 8 10 40.79	. . .
τ Virginis	57 56.513	− .559	.483	13 56 20.471	350 14 17.45	+ 35.60	45.43	+ 2 2 52.38	24.55
ι Virginis	14 12 8.749	− .523	−95.497	14 10 32.729	357 47 14.57	+ 46.62	45.43	− 5 30 15.76	25.40

c +ˢ.003 c' −ˢ.014 ΔT −1ᵐ 35ˢ.359 Nadir 134° 57′ 19″.82 t 46.7
b − .602 at 11ʰ.7 Rate +ˢ.005 at 11ʰ 54ᵐ Equator 352 17 45 .43 B 25.84
a − .109 ρ − .060 T 47

APRIL 18, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
β Virginis	11 46 52.841	− .571	−96.600	11 45 15.670	349 55 59.53	+ 34.79	44.48	+ 2 21 10.16	25 20
o Virginis	12 1 31.114	− .606	.613	11 59 53.895	342 58 32 18	+ 26.49	44.48	+ 9 18 45.81	25.39
4 H. Draconis	9 4.64	−1.96	.620	12 7 26.06	274 6 28.26	− 43.04	44.48	+78 11 59.26	25.90
η Virginis	16 11.363	− .559	.627	12 14 34.177	352 22 20.96	+ 38.10	44.48	− 0 5 14.58	25.05
21 Cassiop. S. P.	40 13.63	+ .50	.648	0 38 37.48	246 44 39.05	−123.86	44.48	+74 24 50.71	26.00
fol. 61	50 18.46	−3.33	.657	12 48 38.47	268 19 39.36	− 52.73	44.48	+83 58 57.85	. . .
ε Virginis	58 36.628	− .618	.665	12 56 59.345	340 46 11.05	+ 24.13	44.48	+11 31 9.30	25.84
211	13 16 20.908	− .367	.681	13 14 43.860	28 24 48.01	+165.80	44.48	− 36 9 49.33	. . .
Gr. 2001	25 12.23	−1.51	.689	13 23 34.03	279 22 16.74	− 35.66	44.48	+72 56 3.40	25.72
63	34 28.130	− .779	.697	13 32 50.654	315 28 14.30	+ 0.45	44.48	+36 49 29.73	. . .
50 Cassiop. S. P.	56 0.18	+ .34	.716	1 54 23.80	244 14 58.65	−240.93	44.48	+71 54 53.24	24.53
65	14 2 2.914	− .431	.722	14 0 25.761	18 26 56.67	+ 99.37	44.48	−26 10 51.56	. . .
ι Virginis	12 9.984	− .531	.731	14 10 32.722	357 47 14.53	+ 46.09	44.48	− 5 30 16.14	25.43
68	23 14.167	− .668	.741	14 21 36.758	332 35 47.58	+ 15.82	44.48	+19 41 41.08	. . .
69	29 30.35	−1.74	.746	14 27 51.86	276 8 52.64	− 40.00	44.48	+76 9 31.84	. . .
μ Virginis	39 11.141	− .533	.755	14 37 33.853	357 29 22.74	+ 45.62	44.48	− 5 12 23.88	25.26
71	52 43.735	− .512	.768	14 51 6.455	3 16 14.36	+ 55.85	44.48	−10 59 25.73	. . .
48 H. Cephei S.P.	15 8 30.84	+ .75	.782	3 6 54.81	249 40 41.29	−107.65	44.48	+77 21 9.16	24.76
β Librae	13 0.921	− .514	.786	15 11 23.621	1 16 53.08	+ 52.15	44.48	− 9 0 0.75	24.96
74	20 31.945	− .733	.792	15 18 54.420	321 37 58.23	+ 5.84	44.48	+30 39 40.41	. . .
α Serpentis	40 45.334	− .594	.811	15 39 7.929	345 32 12.52	+ 29.48	44.48	+ 6 45 2.48	25.09
ζ Urs. Min.	49 33.44	−1.95	−96.819	15 47 54.67	274 11 45.73	− 42.98	44.48	+78 6 41.73	25.02

c +s.003 c' −s.014 ΔT −1m 36s.698 Nadir 134° 57′ 19″.20 ℓ 51.0
b − .609 at 13h 36m Equator 352 17 44 .48 B 25.77
a − .114 ρ −.054 T 50

APRIL 22, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
β Virginis	11 46 57.570	− .616	−101.367	11 45 15.587	349 55 57.43	+ 34.16	42.58	+ 2 21 10.99	24.44
o Virginis	12 1 35.842	− .664	.377	11 59 53.801	342 58 30.65	+ 25.96	42.65	+ 9 18 46.04	25.39
4 H. Draconis	9 9.50	−2.35	.382	12 7 25.77	274 6 24.93	− 42.16	42.69	+78 11 59.92	26.25
η Virginis	16 16.163	− .609	.387	12 14 34.167	352 22 19.92	+ 37.30	42.72	− 0 5 14.50	25.01
21 Cassiop. S. P.	40 18.38	+ .66	.404	0 38 37.64	246 44 33.84	−121.05	42.84	+74 24 49.95	26.13
61	50 23.54	−3.93	.411	12 48 38.20	268 19 35.33	− 51.51	42.89	+83 58 59.07	. . .
9 Virginis	13 6 15.027	− .596	.422	13 4 33.009	357 15 57.78	+ 44 30	42.97	− 4 58 59.11	25.44
211	16 25.701	− .391	.429	13 14 43.881	28 24 50.65	+161.84	43.02	− 36 9 49.47	. . .
Gr. 2001	25 17.24	−1.72	.436	13 23 34.08	279 22 12.09	− 34.84	43.07	+72 56 4.92	25.31
63	34 32.973	− .877	.442	13 32 50.654	315 28 11.84	+ 0.44	43.11	+36 49 30.83	. . .
50 Cassiop. S. P.	56 5.00	+ .36	.457	1 54 23.90	244 14 53.59	−137.94	43.22	+71 54 52.43	24.67
ι Virginis	14 12 14.820	− .615	.468	14 10 32.737	357 47 14.43	+ 45.13	43.30	− 5 30 16.26	25.48
69	29 35.38	−1.89	.481	14 27 52.01	276 8 50.17	− 39.14	43 39	+76 9 32.36	. . .
μ Virginis	39 15.984	− .627	.488	14 37 33.869	357 29 22.37	+ 44.62	43.44	− 5 12 23.55	24.88
71	52 48.585	− .600	.497	14 51 6.488	3 16 15.02	+ 54.57	43.51	−10 59 26.08	. . .
48 H. Cephei S.P.	15 8 35.67	+ .67	.508	3 6 54.83	249 40 37.86	−105.11	43.58	+77 21 9.17	25.76
74	20 36.931	− .833	.517	15 18 54.581	321 37 55.48	+ 5.70	43.64	+30 39 42.46	. . .
α Serpentis	40 50.270	− .705	.531	15 39 8.034	345 32 11.46	+ 28.76	43.75	+ 6 45 3.53	24.27
ζ Urs. Min.	49 38.57	−1.99	.537	15 47 55.04	274 11 43.55	− 41.93	43.79	+78 6 42.17	25.60
δ Ophiuchi	16 10 34.906	− .666	−101.552	16 8 52.688	355 42 46.11	+ 41.92	43.89	− 3 25 44.14	25.82

Interrupted by clouds at 14h.

c +s.006 c' −s.011 ΔT −1m 41s.448 Nadir 134° 57′ 18″.16 at 14h.0 ℓ 64.5
b − .690 at 13h 44m Equator 352 17 43 .16 at 13 .7 B 25.90
a − .132 at 13h.9 Rate −s.03 ρ −.042 Rate +0″.30 hourly T 64

MAY 7, 1895. CIR. W, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
β Virginis . . .	11 47 15.663	− .543	−119.569	11 45 15.551	349 55 58.91	+ 34.89	44.52	+ 2 21 10.72	25.82
o Virginis . . .	12 1 53.935	− .591	.582	11 59 53.762	342 58 30.61	+ 26.58	44.52	+ 9 18 47.33	25.74
4 H. Draconis .	9 26.97	−2.39	.588	12 7 24.99	274 6 23.51	− 43.18	44.52	+78 12 4.19	25.98
η Virginis . . .	16 34.177	− .532	.595	12 14 34.050	352 22 19.69	+ 38.23	44.52	− 0 5 13.40	25.05
21 Cassiop. S. P. .	40 37.28	+ .84	.617	0 38 38.50	246 44 34.16	−124.42	44.52	+74 24 45.22	25.04
61 .	50 40.34	−4.11	.626	12 48 36.60	268 19 33.24	− 52.93	44.52	+83 59 4.21	. . .
9 Virginis . . .	13 6 33.170	− .511	.640	13 4 33.019	357 15 57.76	+ 45.51	44.52	− 4 58 58.75	25.83
211 .	16 43.858	− .287	.649	13 14 43.922	28 24 50.47	+166.29	44.52	−36 9 52.24	. . .
Gr. 2001	25 35.08	−1.74	.657	13 23 33.68	279 22 10.44	− 35.77	44.52	+72 56 9.85	25.29
63 .	34 51.101	− .816	.665	13 32 50.620	315 28 9.18	+ 0.45	44.52	+36 49 34.89	. . .
50 Cassiop. S. P. .	56 23.43	+ .56	.684	1 54 24.31	244 14 53.71	−141.44	44.52	+71 54 47.75	24.13
65 .	14 2 25.949	− .386	.690	14 0 25.873	18 26 59.91	+ 99.77	44.52	−26 10 55.16	. . .
ι Virginis . . .	12 33.127	− .522	.699	14 10 32.906	357 47 13.98	+ 46.31	44.52	− 5 30 15.77	25.83
68 .	23 37.288	− .681	.709	14 21 36.898	332 35 47.01	+ 15.91	44.52	+19 41 41.60	. . .
69 .	29 53.62	−1.98	.714	14 27 51.93	276 8 46.53	− 40.22	44.52	+76 9 38.21	. . .
μ Virginis . . .	39 34.234	− .532	.724	14 37 33.978	357 29 22.21	+ 45.86	44.52	− 5 12 23.55	25.89
71 .	53 6.928	− .500	.736	14 51 6.692	3 16 15.27	+ 56.15	44.52	−10 59 26.90	. . .
48 H. Cephei S.P.	15 8 53.89	+ .97	.750	3 6 55.11	249 40 36.63	−108.89	44.52	+77 21 3.92	25.33
β Librae	13 24.121	− .516	.754	15 11 23.851	1 16 53.23	+ 52.40	44.52	− 9 0 1.11	25.97
74 .	20 55.188	− .765	.761	15 18 54.662	321 37 54.08	+ 5.86	44.52	+30 39 44.58	. . .
α Serpentis . . .	41 8.591	− .612	.779	15 39 8.200	345 32 10.28	+ 29.60	44.52	+ 6 45 4.64	25.46
ζ Urs. Min. . .	49 57.37	−2.13	−119.787	15 47 55.45	274 11 39.83	− 43.16	44.52	+78 6 47.85	25.23

c +ˢ.003 *c′* −ˢ.014 ΔT −1ᵐ 59ˢ.668 Nadir 134° 57′ 18″.82 *t* 51.6
b − .639 at 13ʰ 37ᵐ Equator 352 17 44 .52 B 25.91
a − .051 at 13ʰ.9 Rate −ˢ.02 *ρ* −.054 T 53

MAY 8, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
o Virginis . . .	12 1 55.200	− .634	−120.782	11 59 53.784	342 58 30.91	+ 26.51	44.73	+ 9 18 47.31	25.72
4 H. Draconis .	9 27.70	−2.09	.787	12 7 24.82	274 6 23.19	− 43.04	44.73	+78 12 4.58	25.66
η Virginis . . .	16 35.441	− .587	.793	12 14 34.061	352 22 19.88	+ 38.09	44.73	− 0 5 13.24	24.83
21 Cassiop. S. P.	40 38.77	+ .55	.813	0 38 38.51	246 44 33.55	−123.77	44.73	+74 24 45.05	24.96
61 .	50 40.90	−3.54	.821	12 48 36.54	268 19 33.22	− 52.69	44.73	+83 59 4.20	. . .
ε Virginis . . .	59 0.807	− .650	.827	12 56 59.330	340 46 8.88	+ 24.11	44.73	+11 31 11.74	25.85
9 Virginis . . .	13 6 34.391	− .566	.833	13 4 32.992	357 15 58.11	+ 45.34	44.73	− 4 58 58.72	25.73
211 .	16 45.101	− .387	.841	13 14 43.873	28 24 51.58	+165.73	44.73	−36 9 52.58	. . .
Gr. 2001	25 36.13	−1.58	.848	13 23 33.70	279 22 10.12	− 35.66	44.73	+72 56 10.27	25.04
63 .	34 52.351	− .814	.857	13 32 50.680	315 28 9.14	+ 0.45	44.73	+36 49 35.14	. . .
50 Cassiop. S. P.	56 25.00	+ .35	.873	1 54 24.48	244 14 53.98	−141.15	44.73	+71 54 48.10	24.60
65 .	14 2 27.192	− .461	.878	14 0 25.853	18 27 0.11	+ 99.59	44.73	−26 10 54.97	. . .
ι Virginis . . .	12 34.384	− .571	.886	14 10 32.927	357 47 13.92	+ 46.24	44.73	− 5 30 15.43	25.42
68 .	23 38.524	− .701	.895	14 21 36.928	332 35 46.90	+ 15.88	44.73	+19 41 41.95	. . .
69 .	29 54.69	−1.79	.900	14 27 52.00	276 8 46.38	− 40.14	44.73	+76 9 38.49	. . .
μ Virginis . . .	39 35.556	− .576	.908	14 37 34.072	357 29 22.55	+ 45.78	44.73	− 5 12 23.60	25.87
71 .	53 8.185	− .549	.919	14 51 6.717	3 16 15.51	+ 56.03	44.73	−10 59 26.81	. . .
48 H. Cephei S. P.	15 8 55.27	+ .74	.931	3 6 55.08	249 40 35.81	−108.00	44.73	+77 21 3.08	24.66
β Librae	13 25.278	− .561	.935	15 11 23.782	1 16 53.31	+ 52.39	44.73	− 9 0 0.97	25.76
74 .	20 56.431	− .771	.941	15 18 54.719	321 37 54.16	+ 5.87	44.73	+30 39 44.70	. . .
α Serpentis . .	41 9.827	− .640	.957	15 39 8.230	345 32 10.47	+ 29.67	44.73	+ 6 45 4.59	25.53
ζ Urs. Min. . .	49 58.49	−1.97	−120.964	15 47 55.56	274 11 40.81	− 43.26	44.73	+78 6 47.18	26.11

c −ˢ.003 *c′* −ˢ.020 ΔT −2ᵐ 0ˢ.865 Nadir 134° 57′ 19″.14 *t* 52.0
b − .631 at 13ʰ 46ᵐ Equator 352 17 44 .73 B 25.88
a − .124 at 13ʰ.9 Rate −ˢ.01 *ρ* −.048 T 53

MAY 9, 1895. CIR. W, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ξ Virginis	13 6 35.684	− .606	−122.102	13 4 32.976	357 15 57.51	− 45.03	44.48	− 4 58 58.06	25.18
211	16 46.430	− .403	.111	13 14 43.916	28 24 53.08	+164.63	44.48	−36 9 53.23	. . .
Gr. 2001	25 37.25	−1.72	.119	13 23 ——	279 22 9.18	− 35.45	44.48	+72 56 10.75	24.92
ζ Virginis	31 25.627	− .633	.124	13 29 22 870	352 20 54.80	− 37.87	44.48	− 0 3 48.19	25.69
50 Cassiop. S. P	56 26.13	− .42	.147	1 54 ——	——			+71 54 ——	. . .
65	14 2 28.478	− .478	.152	14 0 25.848	18 27 1.09	+ 98.98	44.48	−26 10 55.59	. . .
ι Virginis	12 35.656	− .602	.161	14 10 32.893	357 47 14.41	+ 45.93	44.48	− 5 30 15.86	25.97
68	23 39.795	− .749	.171	14 21 36.875	332 25 46.81	+ 15.77	44.48	+19 41 41.90	. . .
μ Virginis	39 36.799	− .605	.186	14 37 34.008	357 29 21.59	+ 45.45	44.48	− 5 12 22.56	24.97
P. XIV 221	53 21.358	− .720	−122.198	14 51 18.440	337 25 25.78	+ 20.51	44.48	−14 51 58.19	26.55

c ″.000 *c′* −″.017 ΔT −2ᵐ 2ˢ.154 Nadir 134° 57′ 18″.81 *t* 55.2
b − .68 at 14ʰ 4ᵐ Equator 352 17 44 .48 B 25.86
a − .12 *ρ* − .054 T 55

MAY 13, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
κ Draconis	12 31 13.57	− 1.62	−126.751	12 29 5.20	281 56 10.06	− 31.56	42.99	+70 22 4.49	25.21
δ Virginis	52 28.477	− .644	.768	12 50 21.065	348 19 19.31	+ 31.97	42.99	+ 3 57 51.71	25.24
ε Virginis	59 6.721	− .691	.773	12 56 59.257	340 46 7.29	+ 23.48	42.99	+11 31 12.22	25.85
ϑ Virginis	13 6 40.484	− .593	.779	13 4 33.112	357 15 56.71	+ 44.16	42.99	− 4 58 57.88	25.00
α Urs. Min. S. P.	21 16.73	+15.33	.791	1 19 25.27	261 3 41.57	− 66.41	42.99	+88 44 52.17	26.05
ζ Virginis	31 30.334	− .627	.799	13 29 22.908	352 20 54.47	+ 37.08	42.99	− 0 3 48.56	26.19
66	14 2 39.972	− .404	.824	14 0 32.744	28 6 37.68	+158.23	42.99	−35 51 32.92	. . .
67	15 35.572	− .563	.834	14 13 28.175	5 10 19.02	+ 58.15	42.99	−12 53 34.18	. . .
φ Virginis	24 57.463	− .628	.842	14 22 49.993	354 2 46.45	+ 39.36	42.99	− 1 45 42.82	25.58
36 H. Cass. S. P.	30 6.13	+ .41	.846	2 27 59.69	244 41 32.95	−133.85	42.99	+72 21 36.11	26.14
72	53 30.125	− .527	.865	14 51 22.733	13 13 13.92	+ 78.19	42.99	−20 56 49.11	. . .
73	15 13 53.49	− 8.37	.882	15 11 38.24	264 40 39.18	− 58.30	42.99	+87 38 2.11	. . .
75	24 30.180	− .563	.890	15 22 22.727	8 37 55.34	+ 65.86	42.99	−16 21 18.21	. . .
76	38 3.974	− .549	.900	15 35 56.525	11 37 4.70	+ 73.56	42.99	−19 20 35.27	. . .
ε Serpentis	47 45.049	− .680	.906	15 45 37.463	347 29 50.33	+ 30.94	42.99	+ 4 47 21.72	25.07
216	54 40.235	− .516	.914	15 52 32.805	18 5 5.85	+ 95.31	42.99	−25 48 58.17	. . .
fol. 79	16 8 3.753	− .559	.924	16 5 56.270	11 28 0.90	+ 73.13	42.99	−19 11 31.04	. . .
prec. 81	12 55.049	− .858	.927	16 10 47.264	318 10 32.11	+ 2.73	42.99	+34 7 8.15	. . .
ζ Ophiuchi	33 32.771	− .612	.945	16 31 25.214	2 38 20.34	+ 53.19	42.99	−10 21 30.54	25.69
84	45 32.199	− .480	.954	16 43 24.765	26 21 40.91	+142.66	42.99	−34 6 20.58	. . .
ε Urs. Min.	59 0.86	− 2.78	.966	16 56 51.11	270 6 13.83	− 48.21	42.99	+82 12 17.37	25.79
19 H. Cam. S. P.	17 7 18.33	+ .85	.972	5 5 12.21	251 26 12.03	− 96.97	42.99	+79 6 52.07	26.53
90	23 28.377	− .695	.985	17 21 20.697	348 3 32.30	+ 31.66	42.99	+ 4 13 39.03	. . .
α Ophiuchi	32 13.643	− .736	.992	17 30 5.915	339 39 25.53	+ 22.35	42.99	+12 37 55.11	25.81
β Ophiuchi	40 27.141	− .699	.998	17 38 19.444	347 40 46.17	+ 31.22	42.99	+ 4 36 25.60	25.92
ψ Draco. Aus.	46 0.20	− 1.54	−127.002	17 43 51.66	280 6 36.68	− 33.79	42.99	+72 11 40.10	26.24
ν Ophiuchi	55 24.892	− .636	.010	17 53 17.246	2 2 40.55	+ 52.11	42.99	− 9 45 49.67	26.59

c +″.003 *c′* −″.014 ΔT −2ᵐ 6ˢ.882 Nadir 134° 57′ 17″.30 *t* 65.9
b − .689 at 15ʰ 14ᵐ Equator 352 17 42 .99 B 25.87
a − .144 at 15ʰ.3 Rate −ˢ.02 *ρ* − .048 T 66

MAY 14, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
κ Draconis . . .	12 31 14.40	− 1.53	− 127.736	12 29 5.13	281 56 11.25	− 31.61	44.06	+70 22 4.42	25.21
δ Virginis . . .	52 29.541	− .728	.754	12 50 21.059	348 19 20.35	+ 32.03	44.06	+ 3 57 51.68	25.07
ε Virginis . . .	59 7.842	− .765	.759	12 56 59.318	340 46 8.25	+ 23.53	44.06	+11 31 12.28	25.62
♑ Virginis . . .	13 6 41.449	− .688	.766	13 4 32.995	357 15 58.07	+ 44.25	44.06	− 4 58 58.26	25.14
α Urs. Min. S. P.	21 21.11	+12.51	.778	1 19 25.84	261 3 42.18	− 66.55	44.06	+88 44 51.57	25.40
66 . .	14 2 41.143	− .549	.812	14 0 32.782	28 6 38.40	+158.64	44.06	− 35 51 32.98	. . .
67 . .	15 36.593	− .670	.823	14 13 28.100	5 10 19.18	+ 58.34	44.06	− 12 53 33.46	. . .
φ Virginis . . .	24 58.563	− .720	.831	14 22 50.012	354 2 47.13	+ 39.51	44.06	− 1 45 42.58	25.13
36 H. Cass. S. P.	30 7.51	+ .15	.835	2 27 59.83	244 41 34.69	− 134.44	44.06	+72 21 36.19	26.18
fol. 70 . .	42 35.508	− .860	.847	14 40 26.801	324 46 48.57	+ 8.43	44.06	+27 30 47.06	. . .
fol. 72 . .	53 31.218	− .646	.855	14 51 22.717	13 13 13.92	+ 78.51	44.06	− 20 56 48.37	. . .
73 . .	15 13 49.95	− 6.97	.872	15 11 35.11	264 40 40.69	− 58.55	44.06	+87 38 1.92	. . .
75 . .	24 31.309	− .674	.880	15 22 22.755	8 37 55.55	+ 66.16	44.06	− 16 21 17.65	. . .
76 . .	38 5.024	− .666	.892	15 35 56.466	11 37 4.92	+ 73.92	44.06	− 19 20 34.78	. . .
ε Serpentis . . .	47 46.149	− .763	.900	15 45 37.486	347 29 51.22	+ 31.10	44.06	+ 4 47 21.74	24.89
216 . .	54 41.357	− .643	.905	15 52 32.809	18 5 6.16	+ 95.80	44.06	− 25 48 57.90	. . .
fol. 79 . .	16 8 4.867	− .676	.917	16 5 56.274	11 28 1.71	+ 73.51	44.06	− 19 11 31.16	. . .
prec. 81 . .	12 56.085	− .900	.921	16 10 47.264	318 10 33.23	+ 2.74	44.06	+34 7 8.09	. . .
ζ Ophiuchi . .	33 33.935	− .716	.938	16 31 25.281	2 38 21.45	+ 53.50	44.06	− 10 21 30.89	25.80
84 . .	45 33.328	− .621	.948	16 43 24.759	26 21 42.22	+143.47	44.06	− 34 6 21.63	. . .
ε Urs. Min. . .	59 1.74	− 2.42	.959	16 56 51.36	270 6 14.33	− 48.44	44.06	+82 12 18.17	25.08
19 H. Cam. S. P.	17 7 19.53	+ .45	.966	5 5 12.01	251 26 12.68	− 97.37	44.06	+79 6 51.25	25.69
90 . .	23 29.434	− .778	.980	17 21 20.676	348 3 33.34	+ 31.76	44.06	+ 4 13 38.96	. . .
α Ophiuchi . .	32 14.736	− .810	.987	17 30 5.939	339 39 26.36	+ 22.40	44.06	+12 37 55.30	25.52
β Ophiuchi . .	40 28.277	− .783	.994	17 38 19.500	347 40 46.70	+ 31.30	44.06	+ 4 36 26.06	25.33
ψ Draco. Aus.	46 1.00	− 1.42	.998	17 43 51.58	280 6 37.02	− 33.93	44.06	+72 11 40.97	25.39
ν Ophiuchi . . .	55 26.004	− .738	− 128.006	17 53 17.260	2 2 41.37	+ 52.42	44.06	− 9 45 49.73	26.44

c −ˢ.010 c' −ˢ.027 ΔT − 2ᵐ 7ˢ.882 Nadir 134° 57′ 18″.62 t 63.6
b − .705 at 15ʰ 26ᵐ Equator 352 17 44 .06 B 25.85
a − .249 at 15ʰ.3 Rate −ˢ.02 ρ − .050 T 64

MAY 16, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
κ Draconis . . .	12 31 16.04	− 1.17	− 129.684	12 29 5.19	281 56 11.69	− 31.98	45.08	+70 22 5.37	25.03
δ Virginis . . .	52 31.520	− .793	.690	50 21.037	348 19 21.29	+ 32.36	45.08	+ 3 57 51.43	25.85
ε Virginis . . .	59 9.814	− .808	.694	56 59.312	340 46 8.95	+ 23.76	45.08	+11 31 12.37	26.11
♑ Virginis . . .	13 6 43.456	− .774	.699	13 4 32.983	357 15 58.93	+ 44.63	45.08	− 4 58 58.48	25.79
α Urs. Min. S. P.	21 30.61	+5.76	.710	1 19 26.66	261 3 42.99	− 67.09	45.08	+88 44 50.82	25.44
ζ Virginis . . .	31 33.420	− .784	.717	13 29 22.919	352 20 55.52	+ 37.45	45.08	− 0 3 47.89	25.80
66 . .	14 2 43.129	− .703	.739	14 0 32.687	28 6 38.63	+159.96	45.08	− 35 51 33.51	. . .
67 . .	15 38.615	− .759	.748	14 13 28.108	5 10 20.59	+ 58.82	45.08	− 12 53 34.33	. . .
φ Virginis . . .	25 0.499	− .781	.754	14 22 49.964	354 2 47.88	+ 39.85	45.08	− 1 45 42.65	25.65
36 H. Cass. S. P.	30 9.80	− .31	.758	2 27 59.73	244 41 35.45	− 135.30	45.08	+72 21 35.07	25.82
fol. 70 . .	42 37.379	− .850	.767	14 40 26.762	324 46 48.55	+ 8.50	45.08	+27 30 48.03	. . .
72 . .	53 33.204	− .741	.774	14 51 22.689	13 13 14.99	+ 79.05	45.08	− 20 56 48.96	. . .
73 . .	15 13 50.21	− 4.20	.789	15 11 36.22	264 40 41.41	− 58.85	45.08	+87 38 2.52	. . .
75 . .	24 33.302	− .750	.796	15 22 22.756	8 37 56.50	+ 66.44	45.08	− 16 21 17.86	. . .
76 . .	38 7.060	− .744	.806	15 35 56.510	11 37 5.54	+ 74.17	45.08	− 19 20 34.63	. . .
ε Serpentis . . .	47 48.149	− .795	.812	15 45 37.542	347 29 52.36	+ 31.20	45.08	+ 4 47 21.52	25.68
216 . .	54 43.364	− .729	.817	15 52 32.818	18 5 7.37	+ 96.09	45.08	− 25 48 58.38	. . .
fol. 79 . .	16 8 6.860	− .744	.827	16 5 56.289	11 28 2.63	+ 73.72	45.08	− 19 11 31.27	. . .
prec. 81* . .	12 58.042	− .869	.830	16 10 47.341	318 10 33.33	+ 2.75	45.08	+34 7 9.00	. . .
ζ Ophiuchi . . .	33 33.871	− .763	.845	16 31 25.263	2 38 21.79	+ 53.63	45.08	− 10 21 30.34	25.61
84 . .	45 35.364	− .708	.853	16 43 24.803	26 21 42.21	+143.85	45.08	− 34 6 21.08	. . .
ε Urs. Min. . .	59 3.33	− 1.81	.862	16 56 51.66	270 6 14.16	− 48.58	45.08	+82 12 19.50	24.69
19 H. Cam. S. P.	17 7 21.90	− .02	.868	5 5 12.01	251 26 12.86	− 97.67	45.08	+79 6 50.11	25.40
90 . .	23 31.463	− .794	.880	17 21 20.789	348 3 33.69	+ 31.86	45.08	+ 4 13 39.53	. . .
α Ophiuchi . .	32 16.722	− .811	.885	17 30 6.026	339 39 26.70	+ 22.48	45.08	+12 37 55.90	25.59
β Ophiuchi . .	40 30.241	− .794	.891	17 38 19.556	347 40 47.38	+ 31.39	45.08	+ 4 36 26.31	25.69
ψ Draco. Aus.	46 2.78	− 1.21	.896	17 43 51.67	280 6 37.05	− 34.00	45.08	+72 11 42.03	25.29
ν Ophiuchi . . .	55 27.914	− .764	− 129.902	17 53 17.248	2 2 41.71	+ 52.49	45.08	− 9 45 49.12	26.26

*Preceding star ½ mag. fainter of two.

c −ˢ.006 c' −ˢ.023 ΔT − 2ᵐ 9ˢ.789 Nadir 134° 57′ 19″.28 t 60.0
b − .678 at 15ʰ 14ᵐ Equator 352 17 45 .08 B 25.81
a − .367 ρ − .042 T 60

MAY 17, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
$\varkappa$ Draconis . . .	12 31 17.14	−1.14	−130.752	12 29 5.25	281 56 12.53	− 31.98	45.40	+70 22 4.85	25.69
δ Virginis . . .	52 32.620	− .787	.770	12 50 21.063	348 19 21.29	+ 32.34	45.40	+ 3 57 51.77	25.55
ε Virginis . . .	59 10.835	− .803	.775	12 56 59.257	340 46 9.13	+ 23.74	45.40	+11 31 12.53	26.01
9 Virginis . . .	13 6 44.556	− .769	.782	13 4 33.005	357 15 59.17	+ 44.59	45.40	− 4 58 58.36	25.67
α Urs. Min. S. P. .	21 33.33	+5.45	.794	1 19 27.99	261 3 43.17	− 67.05	45.40	+88 44 50.72	25.52
ζ Virginis . . .	31 34.449	− .779	.802	13 29 22.868	352 20 55.92	+ 37.46	45.40	− 0 3 47.98	25.92
66 . .	14 2 44.200	− .698	.828	14 0 32.674	28 6 38.61	+160.10	45.40	−35 51 33.31	. . .
67 . .	15 39.692	− .753	.839	14 13 28.100	5 10 20.49	+ 58.84	45.40	−12 53 33.93	. . .
φ Virginis . . .	25 1.613	− .775	.847	14 22 49.991	354 2 47.70	+ 39.86	45.40	− 1 45 42.16	25.20
36 H. Cass. S. P. .	30 10.79	− .33	.851	2 27 59.61	244 41 35.06	−135.68	45.40	+72 21 33.98	24.92
70 . .	42 38.415	− .843	.861	14 40 26.711	324 46 48.74	+ 8.51	45.40	+27 30 48.15	. . .
72 . .	53 34.268	− .735	.870	14 51 22.663	13 13 14.98	+ 79.29	45.40	−20 56 48.87	. . .
73 . .	15 13 51.03	−4.04	.888	15 11 36.10	264 40 41.21	− 59.16	45.40	+87 38 3.35	. . .
75 . .	24 34.366	− .745	.896	15 22 22.725	8 37 56.81	+ 66.84	45.40	−16 21 18.25	. . .
76 . .	38 8.174	− .739	.908	15 35 56.527	11 37 5.57	+ 74.67	45.40	−19 20 34.84	. . .
ε Serpentis . .	47 49.199	− .790	.916	15 45 37.493	347 29 51.66	+ 31.41	45.40	+ 4 47 22.33	24.93
216 . .	54 44.478	− .724	.921	15 52 32.833	18 5 7.09	+ 96.78	45.40	−25 48 58.47	. . .
79 . .	16 8 8.003	− .739	.933	16 5 56.331	11 28 1.83	+ 74.29	45.40	−19 11 30.72	. . .
81 . .	12 59.092	− .861	.937	16 10 47.294	318 10 33.46	+ 2.77	45.40	+34 7 9.17	. . .
ζ Ophiuchi . .	33 37.035	− .758	.954	16 31 25.323	2 38 21.89	+ 54.07	45.40	−10 21 30.56	25.80
84 . .	45 36.399	− .701	.964	16 43 24.734	26 21 41.53	+145.10	45.40	−34 6 21.23	. . .
ε Urs. Min. . .	59 4.12	−1.77	.975	16 56 51.37	270 6 14.85	− 48.99	45.40	+82 12 19.54	24.88
19 H. Cam. S. P.	17 7 22.90	− .05	.982	5 5 11.87	251 26 13.54	− 98.49	45.40	+79 6 49.65	25.13
90 . .	23 32.563	− .789	.996	17 21 20.778	348 3 33.70	+ 32.12	45.40	+ 4 13 39.58	. . .
α Ophiuchi . . .	32 17.834	− .806	−131.003	17 30 6.025	339 39 27.11	+ 22.67	45.40	+12 37 55.62	25.97
β Ophiuchi . . .	40 31.349	− .789	.010	17 38 19.550	347 40 47.63	+ 31.66	45.40	+ 4 36 26.11	25.96
ψ Draco. Aus. .	46 3.89	−1.19	.014	17 43 51.69	280 6 37.18	− 34.30	45.40	+72 11 42.93	24.62
ν Ophiuchi . . .	55 29.085	− .759	.021	17 53 17.305	2 2 41.82	+ 52.95	45.40	− 9 45 49.37	26.52

c ˢ.000 c' −ˢ.017 ΔT −2ᵐ 10ˢ.888 Nadir 134° 57′ 19″.65 t 56.5
b − .678 at 15ʰ 14ᵐ Equator 352 17 45 .40 B 25.73
a − .368 ρ −.050 T 56

MAY 21, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
τ Virginis . . .	13 56 28.120	− .643	−6.952	13 56 20.525	350 14 15.01	+ 35.45	45.34	+ 2 2 54.88	24.75
4 Urs. Min. . . .	14 9 31.97	−1.81	.965	14 9 23.20	274 16 3.30	− 43.04	45.34	+78 2 25.08	25.71
36 H. Cass. S. P.	28 6.70	+ .17	.981	2 27 59.89	244 41 36.76	−138.35	45.34	+72 21 33.07	25.25
70 . .	40 34.529	− .759	.993	14 40 26.777	324 46 47.87	+ 8.67	45.34	+27 30 48.80	. . .
P. XIV 221 . . .	51 26.129	− .699	−7.002	14 51 18.428	337 25 24.51	+ 20.69	45.34	+14 52 0.14	26.77
β Librae . . .	15 11 31.658	− .599	.020	15 11 24.039	1 16 53.25	+ 52.34	45.34	− 9 0 0.25	25.89
γ Urs. Min. . . .	21 7.50	−1.41	.029	15 20 59.06	280 6 1.53	− 34.82	45.34	+72 12 18.63	25.78
α Serpentis . .	39 16.084	− .664	.045	15 39 8.375	345 32 9.41	+ 29.55	45.34	+ 6 45 6.38	25.79
77 . .	47 24.717	− .552	.052	15 47 17.113	12 7 55.53	+ 77.35	45.34	−19 51 27.54	. . .
78 . .	54 36.379	− .568	.059	15 54 28.752	8 30 20.32	+ 67.60	45.34	−16 13 42.58	. . .
80 . .	16 6 14.752	−1.246	.070	16 6 6.436	284 13 15.34	− 29.74	45.34	+68 4 59.74	. . .
82 . .	14 58.877	− .508	.077	16 14 51.292	17 36 51.31	+ 96.36	45.34	−25 20 42.33	. . .
83 . .	29 31.358	− .513	.090	16 29 23.755	20 16 4.37	+108.27	45.34	−28 0 7.30	. . .
Gr. 848 S.P. . .	34 46.26	+ .37	.095	4 34 39.53	248 4 51.10	−116.44	45.34	+75 45 9.32	25.08
$\varkappa$ Ophiuchi . . .	52 52.300	− .675	.112	16 52 44.513	342 45 16.12	+ 26.38	45.34	+ 9 32 2.84	26.53
85 . .	57 54.348	− .795	.116	16 57 46.437	318 34 45.02	+ 3.17	45.34	+33 42 57.15	. . .
s. p. 86 . .	17 9 4.042	− .522	.126	17 8 56.394	18 43 11.44	−101.04	45.34	−26 27 7.14	. . .
87 . .	15 54.362	− .789	.132	17 16 46.441	319 41 47.56	+ 4.15	45.34	+32 35 53.63	. . .
217 . .	23 48.409	− .462	.140	17 23 40.805	29 27 39.74	+177.78	45.34	−37 12 52.18	. . .
α Ophiuchi . . .	30 13.908	− .688	.145	17 30 6.075	339 39 25.28	+ 22.99	45.34	+12 37 57.07	25.62
153 . .	35 24.290	− .450	.150	17 35 16.690	31 13 5.62	+200.71	45.34	−38 58 40.99	. . .
ψ Draco. Aus. .	44 0.50	−1.41	.158	17 43 51.93	280 6 36.36	− 34.78	45.34	+72 11 43.76	25.41
ν Ophiuchi . . .	53 25.135	− .596	.166	17 53 17.373	2 2 40.81	+ 53.67	45.34	− 9 45 49.14	26.97
72 Ophiuchi . .	18 2 32.521	− .675	.174	18 2 24.672	342 44 36.26	+ 26.32	45.34	+ 9 32 42.76	25.91
22 H. Cam. S. P.	7 23.21	+ .06	−7.179	6 7 16.09	241 42 7.12	−163.96	45.34	+69 21 37.82	25.47

c ˢ.000 c' −ˢ.017 ΔT −7ˢ.076 Nadir 134° 57′ 19″.31 t 49.3
b − .634 at 16ʰ 14ᵐ Equator 352 17 45 .34 B 25.79
a − .189 ρ −.054 T 49

MAY 22, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
4 Urs. Min. . .	14 9 33.23	−1.97	−8.169	14 9 23.09	274 16 3.21	− 42.85	45.45	+78 2 25.09	25.68
36 H. Cass. S. P. .	28 7.86	+ .34	.187	2 28 0.01	244 41 36.05	−137.83	45.45	+72 21 32.77	24.84
μ Virginis . . .	37 42.870	− .589	.197	14 37 34.084	357 29 22.16	+ 45.73	45.45	− 5 12 22.44	25.45
P XIV 221 . . .	51 27.393	− .687	.210	14 51 18.496	337 25 24.04	+ 20.62	45.45	+14 52 0.79	26.00
β Librae	15 11 32.764	− .571	.230	15 11 23.963	1 16 52.77	+ 52.15	45.45	− 8 59 59.47	24.86
γ Urs. Min. . .	21 8.70	−1.51	.240	15 20 58.95	280 6 0.71	− 34.70	45.45	+72 12 19.44	25.00
α Serpentis . .	39 17.277	− .646	.258	15 39 8.373	345 32 9.28	+ 29.44	45.45	+ 6 45 6.73	25.29
77 . .	47 25.867	− .516	.266	15 47 17.085	12 7 55.34	+ 77.09	45.45	−19 51 26.98	. . .
78 . .	54 37.530	− .535	.274	15 54 28.721	8 30 20.25	+ 67.39	45.45	−16 13 42.19	. . .
80 . .	16 6 16.058	−1.326	.285	16 6 6.447	284 13 14.97	− 29.65	45.45	+68 5 0.13	. . .
82 . .	15 0.084	− .487	.294	16 14 51.303	17 36 51.27	+ 96.06	45.45	−25 20 41.88	. . .
83 . .	29 32.536	− .473	.309	16 29 23.754	20 16 4.43	+107.92	45.45	−28 0 6.90	. . .
Gr. 848 S. P. .	34 47.21	+ .56	.314	4 34 39.46	248 4 50.55	−116.17	45.45	+75 45 9.03	24.78
$\varkappa$ Ophiuchi . .	52 53.450	− .660	.332	16 52 44.458	342 45 16.31	+ 26.29	45.45	+ 9 32 2.85	26.41
85 . .	57 55.520	− .801	.337	16 57 46.382	318 34 44.78	+ 3.16	45.45	+33 42 57.51	. . .
86 . .	17 9 5.264	− .480	.348	17 8 56.436	18 43 10.96	+100.71	45.45	−26 27 6.22	. . .
87 . .	16 55.547	− .792	.356	17 16 46.399	319 41 47.84	+ 4.14	45.45	+32 35 53.47	. . .
217 . .	23 49.588	− .411	.363	17 23 40.814	29 27 40.53	+177.27	45.45	−37 12 52.35	. . .
α Ophiuchi . .	30 15.165	− .675	.369	17 30 6.121	339 39 25.09	+ 22.93	45.45	+12 37 57.43	25.18
153 . .	35 25.569	− .400	.374	17 35 16.795	391 13 5.44	+200.20	45.45	−38 58 40.19	. . .
ψ Draco. Aus. . .	44 1.84	−1.51	.383	17 43 51.95	280 6 36.16	− 34.69	45.45	+72 11 43.98	25.26
ν Ophiuchi . . .	53 26.371	− .567	.392	17 53 17.412	2 2 40.93	+ 53.51	45.45	− 9 45 48.99	26.65
72 Ophiuchi . .	18 2 33.807	− .660	.402	18 2 24.745	342 44 36.58	+ 26.22	45.45	+ 9 32 42.65	25.94
22 H. Cam. S. P.	7 24.24	+ .19	−8.406	6 7 16.02	241 42 5.58	−163.19	45.45	+69 21 36.94	24.54

c −ˢ.003 c' −ˢ.020 ΔT −8ˢ.299 Nadir 134° 57′ 19″.73 t 50.3
b − .638 at 16ʰ 20ᵐ Equator 352 17 45 .45 B 25.74
a − .143 ρ −.060 T 51

MAY 23, 1895. CIR. W, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
4 Urs. Min. . . .	14 9 34.38	−1.93	−9.460	14 9 22.99	274 16 2.41	− 42.87	44.52	+78 2 24.98	26.38
36 H. Cass. S. P. .	28 9.13	+ .32	.478	2 27 59.97	244 41 35.18	−137.73	44.52	+72 21 32.93	25.58
μ Virginis . . .	37 44.184	− .572	.488	14 37 34.124	357 29 21.04	+ 45.68	44.52	− 5 12 22.20	25.65
P XIV 221 . . .	51 28.572	− .668	.501	14 51 18.403	337 25 22.88	+ 20.59	44.52	+14 52 1.05	26.26
β Librae	15 11 34.071	− .553	.522	15 11 23.996	1 16 52.05	+ 52.05	44.52	− 8 59 59.58	25.39
γ Urs. Min. . .	21 9.84	−1.47	.531	15 20 58.84	280 5 59.57	− 34.63	44.52	+72 12 19.58	25.52
α Serpentis . . .	39 18.541	− .628	.549	15 39 8.364	345 32 8.51	+ 29.37	44.52	+ 6 45 6.64	25.88
77 . .	47 27.117	− .500	.557	15 47 17.060	12 7 54.59	+ 76.88	44.52	−19 51 26.95	. . .
78 . .	54 38.873	− .518	.565	15 54 28.790	8 30 19.27	+ 67.20	44.52	−16 13 41.95	. . .
80 . .	16 6 17.238	−1.290	.576	16 6 6.372	284 13 13.76	− 29.58	44.52	+68 5 0.34	. . .
82 . .	15 1.341	− .471	.585	16 14 51.285	17 36 50.19	+ 95.90	44.52	−25 20 41.57	. . .
83 . .	29 33.765	− .456	.600	16 29 23.709	20 16 3.21	+107.97	44.52	−28 0 6.62	. . .
Gr. 848 S. P. .	34 48.54	+ .54	.604	4 34 39.48	248 4 49.22	−116.15	44.52	+75 45 8.55	24.95
$\varkappa$ Ophiuchi . .	52 54.742	− .641	.623	16 52 44.478	342 45 14.93	+ 26.28	44.52	+ 9 32 3.31	26.49
85 . .	57 56.855	− .778	.628	16 57 46.449	318 34 43.50	+ 3.16	44.52	+33 42 57.86	. . .
86 . .	17 9 6.485	− .465	.639	17 8 56.381	18 43 10.22	+100.65	44.52	−26 27 6.35	. . .
87 . .	16 56.797	− .770	.647	17 16 46.380	319 41 45.24	+ 4.14	44.52	+32 35 55.14	. . .
217 . .	23 50.938	− .396	.654	17 23 40.888	29 27 39.15	+177.33	44.52	−37 12 51.96	. . .
α Ophiuchi . . .	30 16.472	− .656	.660	17 30 6.156	339 39 24.11	+ 22.95	44.52	+12 37 57.46	25.72
153 . .	35 26.876	− .384	.665	17 35 16.827	31 13 4.48	+200.40	44.52	−38 58 40.36	. . .
ψ Draco. Aus. . .	44 3.14	−1.47	.674	17 43 52.00	280 6 34.99	− 34.74	44.52	+72 11 44.27	25.64
ν Ophiuchi . .	53 27.735	− .550	.683	17 53 17.502	2 2 39.82	+ 53.63	44.52	− 9 45 48.93	27.07
72 Ophiuchi . .	18 2 35.064	− .641	.693	18 2 24.730	342 44 35.35	+ 26.29	44.52	+ 9 32 42.88	26.28
22 H. Cam. S. P.	7 25.60	+ .18	−9.697	6 7 16.08	241 42 4.95	−163.69	44.52	+69 21 36.74	24.93

c ˢ.000 c' −ˢ.017 ΔT −9ˢ.590 Nadir 134° 57′ 18″.43 t 50.9
b − .623 at 16ʰ 20ᵐ Equator 352 17 44 .52 B 25.78
a − .137 ρ −.060 T 52

MAY 29, 1895. CIR. W, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
4 Urs. Min.	14 9 42.20	−2.14	−17.281	14 9 22.78	274 16 0.83	− 43.37	44.25	+78 2 26.79	25.99
36 H. Cass. S. P.	28 16.98	+ .69	.303	2 28 0.37	244 41 35.74	−139.40	44.31	+72 21 32.03	25.76
μ Virginis	37 51.920	− .439	.314	14 37 34.167	357 29 20.21	+ 46.24	44.34	− 5 12 22.11	25.81
P XIV 221	51 36.372	− .559	.330	14 51 18.483	337 25 22.21	+ 20.86	44.39	+14 52 1.32	26.91
β Librae	15 11 41.800	− .416	.354	15 11 24.030	1 16 51.73	+ 52.79	44.46	− 9 0 0.06	26.07
γ Urs. Min.	21 17.70	−1.57	.364	15 20 58.77	280 5 58.43	− 35.14	44.49	+72 12 21.20	25.66
α Serpentis	39 26.320	− .510	.386	15 39 8.424	345 32 6.91	+ 29.80	44.55	+ 6 45 7.84	25.52
77	47 34.910	− .349	.396	15 47 17.165	12 7 53.26	− 78.11	44.58	−19 51 26.79	. . .
78	54 46.644	− .372	.404	15 54 28.868	8 30 17.85	+ 68.31	44.60	−16 13 41.56	. . .
80	16 6 25.117	−1.344	.417	16 6 6.356	284 13 12.24	− 30.03	44.64	+68 5 2.43	. . .
82	15 9.120	− .312	.428	16 14 51.380	17 36 48.99	+ 97.22	44.67	−25 20 41.54	. . .
83	29 41.618	− .295	.444	16 29 23.879	20 16 2.83	+109.10	44.72	−28 0 7.21	. . .
Gr. 848 S. P.	34 56.37	+ .97	.451	4 34 39.89	248 4 49.12	−117.37	44.73	+75 45 7.02	25.04
κ Ophiuchi	53 2.592	− .525	.472	16 52 44.595	342 45 14.41	+ 26.61	44.79	+ 9 32 3.77	26.98
85	58 4.663	− .699	.478	16 57 46.486	318 34 42.14	+ 3.20	44.81	+33 42 59.47	. . .
86	17 9 14.378	− .305	.491	17 8 56.582	18 43 9.68	+101.91	44.85	−26 27 6.74	. . .
87	17 4.654	− .689	.500	17 16 46.465	319 41 44.96	+ 4.18	44.87	+32 35 55.73	. . .
217	23 58.752	− .220	.508	17 23 41.024	29 27 37.49	+179.11	44.90	−37 12 51.70	. . .
α Ophiuchi	30 24.286	− .544	.515	17 30 6.227	339 39 22.99	+ 23.16	44.92	+12 37 58.77	25.57
153	35 34.697	− .204	.522	17 35 16.971	31 13 3.94	+202.10	44.94	−38 58 41.10	. . .
ψ Draco. Aus.	44 11.22	−1.57	.531	17 43 52.12	280 6 33.26	− 35.01	44.96	+72 11 46.71	25.15
ν Ophiuchi	53 35.578	− .411	.542	17 53 17.625	2 2 38.59	+ 54.07	45.00	− 9 45 47.66	26.38
72 Ophiuchi	18 2 43.007	− .525	.553	18 2 24.929	342 44 34.47	+ 26.55	45.03	+ 9 32 44.01	26.35
22 H. Cam. S. P	7 33.17	+ .51	−17.559	6 7 16.12	241 42 4.41	−165.39	45.04	+69 21 33.98	23.63

c −″.006 c' −″.023 ΔT −17ˢ.433 Nadir 134° 57′ 18″.36 at 15ʰ.7 t 48.6
b −.559 at 16ʰ 20ᵐ Equator 352 17 44 .68 at 16 .3 B 25.96
a −.003 ρ −.070 Rate +0ˢ.20 hourly T 49

JULY 15, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
Gr. 750 S. P.	16 4 41.24	+ 2.47	−67.670	4 3 36.04	257 35 40.47	− 74.66	47.96	+85 16 37.85	25.48
19 Urs. Min.	15 2.18	− 1.63	.680	16 13 52.87	276 9 53.52	− 38.51	47.96	+76 8 32.95	25.05
ζ Ophiuchi	32 33.872	− .587	.696	16 31 25.589	2 38 22.34	+ 52.54	47.96	−10 21 26.92	25.18
κ Ophiuchi	53 53.122	− .667	.715	16 52 44.740	342 45 11.27	+ 25.27	47.96	+ 9 32 11.42	26.24
19 H. Cam. S. P.	17 6 21.62	+ .72	.726	5 5 14.61	251 25 58.62	− 95.81	47.96	+79 6 34.85	25.29
88	21 9.299	− .530	.739	17 20 1.030	16 21 15.51	+ 87.59	47.96	−24 4 55.14	. . .
219	27 40.901	− .463	.745	17 26 32.693	29 16 50.79	+168.34	47.96	−37 1 51.17	. . .
β Ophiuchi	39 28.550	− .647	.756	17 38 20.147	347 40 41.54	+ 30.80	47.96	+ 4 36 35.62	25.32
ψ Draco. Aus.	45 0.90	− 1.40	.760	17 43 51.74	280 6 20.11	− 33.37	47.96	+72 12 1.22	25.37
ν Ophiuchi	54 26.444	− .590	.769	17 53 18.085	2 2 40.80	+ 51.50	47.96	− 9 45 44.34	26.09
220	18 11 43.780	− .466	.784	18 10 35.530	29 2 46.33	+165.67	47.96	−36 47 44.04	. . .
93	18 24.485	− .477	.791	18 17 16.217	26 41 34.00	+143.59	47.96	−34 26 9.63	. . .
156	40 18.015	− .515	.810	18 39 9.690	19 22 7.83	+ 99.47	47.96	−27 5 59.34	. . .
96	50 58.66	− 1.57	.820	18 49 49.27	276 59 50.44	− 37.32	47.96	+75 18 34.84	. . .
97	57 8.217	− .501	.825	18 55 59.891	22 17 45.36	+113.82	47.96	−30 1 51.22	. . .
λ Aquilae	19 1 52.435	− .609	.830	19 0 43.996	357 19 29.03	+ 43.58	47.96	− 5 2 24.65	24.93
32 l. c.	10 4.33	+ 1.35	.837	7 8 57.84	254 56 2.35	− 82.57	47.96	+82 36 51.82	. . .
δ Aquilae	21 23.978	− .640	.847	19 20 15.491	349 22 55.46	+ 32.71	47.96	+ 2 54 19.79	25.32
λ Urs. Min.	29 48.92	−14.84	.854	19 28 26.23	263 20 12.10	− 60.12	47.96	+88 58 35.98	25.49
γ Aquilae	42 27.679	− .671	.866	19 41 19.142	341 55 55.96	+ 24.26	47.96	+10 21 27.74	25.59
Gr. 1374 S. P.	48 45.78	+ .29	.871	7 47 38.20	246 31 44.04	−119.61	47.96	+74 11 56.47	25.31
103	20 0 12.357	− .656	.882	19 59 3.819	345 18 23.34	+ 27.89	47.96	+ 6 58 56.73	. . .
9 Aquilae	7 5.007	− .623	−67.888	20 5 56.496	353 25 6.02	+ 37.82	47.96	− 1 7 55.88	25.98

c −ˢ.010 c' −ˢ.027 Δ T −1ᵐ 7ˢ.796 Nadir 134° 57′ 22″.38 t 75.2
b −.616 at 18ʰ 24ᵐ Equator 352 17 47 .96 B 25.98
a −.184 ρ −.054 T 76

JULY 16, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Gr. 750 S. P. . .	16 4 44.16	+1.18	−68.526	4 3 36.81	257 35 41.91	− 75.43	48.63	+85 16 37.85	25.64
19 Urs. Min. . .	15 2.36	−1.27	.532	16 13 52.56	276 9 54.59	− 38.91	48.63	+76 8 32.95	25.28
ζ Ophiuchi . . .	32 34.822	− .674	.542	16 31 25.606	2 38 22.86	+ 53.13	48.63	−10 21 27.36	25.71
88 . .	17 21 10.149	− .660	.569	17 20 0.920	16 21 14.72	+ 88.60	48.63	−24 4 54.69	. . .
219 . .	27 41.844	− .633	.573	17 26 32.638	29 16 50.09	+170.32	48.63	−37 1 51.78	. . .
β Ophiuchi . . .	39 29.428	− .716	.578	17 38 20.134	347 40 41.74	+ 31.16	48.63	+ 4 36 35.73	25.42
ψ Draco. Aus. .	45 1.37	−1.07	.582	17 43 51.72	280 6 20.86	− 33.77	48.63	+72 12 1.54	25.39
ν Ophiuchi . . .	54 27.386	− .694	.587	17 53 18.105	2 2 40.98	+ 52.13	48.63	− 9 45 44.48	26.34
155 . .	18 0 16.888	− .659	.590	17 59 7.639	22 41 30.33	+117.70	48.63	−30 25 39.40	. . .
220 . .	11 44.816	− .653	.596	18 10 35.567	29 2 45.28	+167.82	48.63	−36 47 44.47	. . .
93 . .	18 25.549	− .658	.600	18 17 16.291	26 41 31.33	+145.46	48.63	−34 26 8.12	. . .
156 . .	40 18.978	− .680	.612	18 39 9.686	19 22 7.46	+100.82	48.63	−27 5 59.65	. . .
96 . .	50 58.85	−1.11	.618	18 49 49.12	276 59 51.35	− 37.83	48.63	+75 18 35.11	. . .
97 . .	57 9.288	− .680	.620	18 55 59.988	22 17 45.04	+115.45	48.63	−30 1 51.86	. . .
λ Aquilae . . .	19 1 53.293	− .718	.625	19 0 43.950	357 19 29.44	+ 44.23	48.63	− 5 2 25.04	25.47
32 l. c.	10 6.26	+ .09	.628	7 8 57.72	254 56 1.67	− 83.87	48.63	+82 36 49.17	. . .
δ Aquilae . . .	21 24.850	− .732	.635	19 20 15.483	349 22 54.90	+ 33.27	48.63	+ 2 54 20.46	24.85
λ Urs. Min. . .	29 41.32	−5.84	.639	19 28 26.84	263 20 13.02	− 61.18	48.63	+88 58 36.79	25.07
γ Aquilae . . .	42 28.558	− .745	.646	19 41 19.167	341 55 56.12	+ 24.70	48.63	+10 21 27.81	25.78
Gr. 1374 S. P. .	48 47.16	− .38	.650	7 47 38.13	246 31 46.32	−121.80	48.63	+74 11 55.89	25.06
103 . .	20 0 13.193	− .743	.656	19 59 3.794	345 18 23.37	+ 28.33	48.63	+ 6 58 56.93	. . .
9 Aquilae . . .	7 5.928	− .736	−68.660	20 5 56.532	353 25 5.39	+ 38.51	48.63	− 1 7 55.27	25.58

c −ˢ.010 *c′* −ˢ.027 ΔT −1ᵐ 8ˢ.609 Nadir 134° 57′ 23″.04 *t* 66.1
b − .602 at 18ʰ 37ᵐ Equator 352 17 48 .63 B 25.87
a − .340 at 18ʰ.0 Rate −ˢ.02 ρ − .033 T 68

JULY 17, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Gr. 750 S. P. . .	16 4 45.75	+ .84	−69.264	4 3 37.33	257 35 40.99	− 75.04	48.76	+85 16 37.19	25.31
19 Urs. Min. . .	15 3.00	−1.20	.273	16 13 52.53	276 9 53.41	− 38.72	48.76	+76 8 34.07	24.51
ζ Ophiuchi . . .	32 35.594	− .716	.289	16 31 25.589	2 38 22.56	+ 52.94	48.76	−10 21 26.74	25.32
κ Ophiuchi . . .	53 54.822	− .751	.309	16 52 44.762	342 45 11.47	+ 25.46	48.76	+ 9 32 11.83	26.31
19 H. Cam. S. P.	17 6 24.43	− .10	.319	5 5 15.01	251 25 59.65	− 96.56	48.76	+79 6 34.33	25.38
88 . .	21 11.006	− .691	.332	17 20 0.983	16 21 14.26	+ 88.29	48.76	−24 4 53.78	. . .
219 . .	27 42.728	− .678	.339	17 26 32.711	29 16 49.55	+169.72	48.76	−37 1 50.51	. . .
β Ophiuchi . . .	39 30.250	− .747	.350	17 38 20.153	347 40 41.46	+ 31.05	48.76	+ 4 26 36.25	25.18
ψ Draco. Aus. .	45 2.07	−1.07	.354	17 43 51.66	280 6 20.14	− 33.65	48.76	+72 12 2.27	25.11
ν Ophiuchi . . .	54 28.186	− .728	.363	17 53 18.095	2 2 40.98	+ 51.94	48.76	− 9 45 44.16	26.28
155 . .	18 0 17.710	− .698	.368	17 59 7.644	22 41 30.91	+117.29	48.76	−30 25 39.44	. . .
220 . .	11 45.609	− .689	.378	18 10 35.542	29 2 45.37	+167.22	48.76	−36 47 43.83	. . .
93 . .	18 26.335	− .694	.384	18 17 16.257	26 41 33.53	+144.98	48.76	−34 26 9.75	. . .
156 . .	40 19.851	− .710	.404	18 39 9.737	19 22 7.45	+100.47	48.76	−27 5 59.16	. . .
96 . .	50 59.75	−1.12	.414	18 49 49.22	276 59 50.66	− 37.70	48.76	+75 18 35.80	. . .
97 . .	57 10.038	− .707	.419	18 55 59.912	22 17 44.52	+115.08	48.76	−30 1 50.84	. . .
λ Aquilae . . .	19 1 54.128	− .742	.424	19 0 43.962	357 19 29.43	+ 44.10	48.76	− 5 2 24.77	25.50
32 l. c.	10 7.09	+ .05	.431	7 8 57.71	254 56 0.54	− 83.64	48.76	+82 36 48.14	. . .
δ Aquilae . . .	21 25.678	− .754	.441	19 20 15.483	349 22 55.14	+ 33.19	48.76	+ 2 54 20.43	25.22
λ Urs. Min. . .	29 41.69	−5.86	.449	19 28 26.38	263 20 12.68	− 61.03	48.76	+88 58 37.11	25.29
γ Aquilae . . .	42 29.415	− .766	.460	19 41 19.189	341 55 56.49	+ 24.63	48.76	+10 21 27.64	26.32
Gr. 1374 S. P. .	48 47.93	− .39	.467	7 47 38.07	246 31 45.55	−121.44	48.76	+74 11 55.35	25.02
103 . .	20 0 14.007	− .762	.476	19 59 3.769	345 18 23.34	+ 28.31	48.76	+ 6 58 57.11	. . .
9 Aquilae . . .	7 6.785	− .754	−69.482	20 5 56.549	353 25 5.66	+ 38.39	48.76	− 1 7 55.29	25.93

c −ˢ.010 *c′* −ˢ.027 ΔT −1ᵐ 9ˢ.390 Nadir 134° 57′ 23″.00 *t* 67.4
b − .620 at 18ʰ 24ᵐ Equator 352 17 48 .76 B 25.84
a − .366 at 17ʰ.8 Rate −ˢ.01 ρ − .054 T 68

JULY 19, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
Gr. 750 S. P.	16 4 46.86	+1.40	−70.842	4 3 37.42	257 35 40.98	− 75.61	47.92	+85 16 37.45	26.11
19 Urs. Min.	15 4.66	−1.29	.850	16 13 52.52	276 9 52.57	− 39.04	47.92	+76 8 34.39	24.84
ζ Ophiuchi	32 37.044	− .609	.865	16 31 25.570	2 38 20.92	+ 53.38	47.92	−10 21 26.38	25.37
κ Ophiuchi	53 56.301	− .651	.883	16 52 44.767	342 45 10.25	+ 25.69	47.92	+ 9 32 11.98	26.74
19 H. Cam. S. P.	17 6 25.79	+ .26	.893	5 5 15.16	251 25 59.43	− 97.47	47.92	+79 6 34.04	25.79
88	21 12.373	− .572	.906	17 20 0.895	16 21 13.62	+ 89.18	47.92	−24 4 54.88	. . .
219	27 44.066	− .529	.911	17 26 32.626	29 16 47.71	+171.50	47.92	−37 1 51.29	. . .
β Ophiuchi	39 31.807	− .649	.921	17 38 20.237	347 40 40.45	+ 31.38	47.92	+ 4 36 36.09	25.94
ψ Draco. Aus.	45 3.68	−1.14	.926	17 43 51.61	280 6 18.99	− 34.00	47.92	+72 12 2.93	25.36
ν Ophiuchi	54 29.601	− .611	.933	17 53 18.057	2 2 40.05	+ 52.47	47.92	− 9 45 44.60	27.20
155	18 0 19.053	− .553	.938	17 59 7.562	22 41 29.21	+118.47	47.92	−30 25 39.76	. . .
220	11 46.973	− .531	.948	18 10 35.494	29 2 43.50	+168.86	47.92	−36 47 44.44	. . .
93	18 27.728	− .539	.953	18 17 16.237	26 41 32.34	+146.35	47.92	−34 26 10.77	. . .
156	40 21.136	− .563	.971	18 39 9.602	19 22 6.47	+101.36	47.92	−27 5 59.91	. . .
96	51 1.54	−1.26	.980	18 49 49.30	276 59 49.59	− 38.02	47.92	+75 18 36.35	. . .
97	57 11.438	− .554	.985	18 55 59.899	22 17 44.10	+116.00	47.92	−30 1 52.18	. . .
λ Aquilae	19 1 55.628	− .624	.990	19 0 44.014	357 19 28.25	+ 44.42	47.92	− 5 2 24.75	26.06
32 l. c.	10 7.94	+ .68	.996	7 8 57.62	254 55 59.28	− 84.20	47.92	+82 36 47.16	. . .
δ Aquilae	21 27.150	− .643	−71.006	19 20 15.501	349 22 53.99	+ 33.37	47.92	+ 2 54 20.56	25.77
λ Urs. Min.	29 42.07	−9.95	.012	19 28 21.11	263 20 11.29	− 61.38	47.92	+88 58 38.01	25.44
γ Aquilae	42 30.822	− .663	.023	19 41 19.136	341 55 54.23	+ 24.76	47.92	+10 21 28.93	25.76
Gr. 1374 S. P.	48 49.14	− .03	.028	7 47 38.08	246 31 44.40	−122.12	47.92	+74 11 54.36	24.99
103	20 0 15.500	− .654	.038	19 59 3.808	345 18 22.22	+ 28.47	47.92	+ 6 58 57.23	. . .
9 Aquilae	7 8.314	− .634	−71.044	20 5 56.636	353 25 3.89	+ 38.61	47.92	− 1 7 54.58	25.90

c −s.003 c' −s.020 ΔT −1m 10s.958 Nadir 134° 57′ 21″.83 t 62.4
b −.580 at 18h 24m Equator 352 17 47 .92 B 25.80
a −.257 ρ −.050 T 66

JULY 22, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
A. Draconis	16 29 28.87	−1.37	−73.418	16 28 14.08	283 18 27.99	− 29.68	44.75	+68 59 46.44	25.37
Gr. 848 S. P.	35 55.90	+ .75	.423	4 34 43.23	248 4 32.87	−112.09	44.75	+75 44 56.03	24.61
κ Ophiuchi	53 58.765	− .602	.438	16 52 44.725	342 45 7.22	+ 25.39	44.75	+ 9 32 12.14	26.48
α Herculis	17 11 8.516	− .631	.452	17 9 54.433	337 46 51.69	+ 20.27	44.75	+14 30 32.79	25.03
89	21 56.567	− .394	.461	17 20 42.710	22 2 22.76	+113.20	44.75	−29 46 31.21	. . .
26 l. c.	29 30.37	+3.18	.468	5 28 20.08	257 27 35.34	− 75.40	44.75	+85 8 35.19	. . .
β Ophiuchi	39 34.271	− .581	.476	17 38 20.214	347 40 37.22	+ 30.95	44.75	+ 4 36 36.58	25.35
ψ Draco. Aus.	45 6.21	−1.51	.481	17 43 51.22	280 6 15.14	− 33.54	44.75	+72 12 3.15	25.47
ν Ophiuchi	54 32.136	− .511	.488	17 53 18.137	2 2 37.06	+ 51.77	44.75	− 9 45 44.08	26.42
fol. 91	18 1 26.257	− .572	.494	18 0 12.191	349 45 48.96	+ 33.49	44.75	+ 2 31 22.30	. . .
22 H. Cam. S. P.	8 30.85	+ .29	.500	6 7 17.64	241 41 46.12	−158.18	44.75	+69 21 23.19	25.24
92	15 34.160	− .401	.506	18 14 20.253	22 8 19.24	+113.82	44.75	−29 52 28.31	. . .
94	22 47.235	− .432	.512	18 21 33.291	17 45 4.21	+ 93.37	44.75	−25 28 52.83	. . .
95	30 47.051	− .522	.518	18 29 33.011	0 36 1.54	+ 49.24	44.75	− 8 19 6.03	. . .
222	52 45.790	− .459	.537	18 51 31.794	13 31 9.94	+ 78.57	44.75	−21 14 43.76	. . .
223	19 1 41.051	− .423	.544	19 0 27.084	20 5 29.65	+103.39	44.75	−27 49 28.29	. . .
98	12 47.347	− .473	.554	19 11 33.320	11 24 56 22	+ 72.48	44.75	−19 8 23.95	. . .
99	21 15.194	− .626	.561	19 20 1.007	340 34 8.76	+ 23.10	44.75	+11 43 12.89	. . .
100	32 32.215	− .534	.570	19 31 18.111	359 32 34.72	+ 47.44	44.75	− 7 15 37.41	. . .
101	37 37.331	− .655	.574	19 36 23.102	335 3 26.74	+ 17.64	44.75	+17 14 0.37	. . .
γ Aquilae	42 33.465	− .620	.578	19 41 19.267	341 55 50.82	+ 24.53	44.75	+10 21 29.40	25.52
β Aquilae	51 26.707	− .600	.586	19 50 12.521	346 8 32.17	+ 29.17	44.75	+ 6 8 43.41	25.36
Br. 1147 S. P.	20 7 34.60	+ .64	.599	8 6 21.64	248 24 13.70	−110.48	44.75	+76 4 38.47	25.03
κ Cephei	13 44.20	−1.86	.604	20 12 28.74	274 54 43.30	− 40.50	44.75	+77 23 41.95	25.14
ε Delphini	29 29.194	− .627	.618	20 28 14.949	341 20 29.13	+ 23.93	44.75	+10 56 51.69	25.91
ε Aquarii	43 17.272	− .530	−73.629	20 42 3.113	2 9 34.39	+ 52.05	44.75	− 9 52 41.49	25.91

c −s.010 c' −s.027 ΔT −1m 13s.533 Nadir 134° 57′ 19″.00 t 70.8
b −.596 at 18h 48m Equator 352 17 44 .75 B 25.95
a −.099 at 18h.2 Rate −s.01 ρ −.050 T 73

JULY 23, 1895. CIR. W, WT. 5, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
A. Draconis . .	16 29 29.51	−1.32	−74.347	16 28 13.84	283 18 30.17	− 29.68	46.41	+68 59 45.92	25.88
Gr. 848 S. P. . .	35 57.09	+ .54	.350	4 34 43.28	248 4 35.80	−112.07	46.43	+75 44 57.30	25.83
$\varkappa$ Ophiuchi . . .	53 59.722	− .642	.361	16 52 44.719	342 45 8.77	+ 25.37	46.49	+ 9 32 12.35	26.21
α Herculis . . .	17 11 9.480	− .669	.372	17 9 54.439	337 46 53.67	+ 20.25	46.55	+14 30 32.63	25.15
89 . .	21 57.545	− .466	.378	17 20 42.701	22 2 25.09	+112.99	46.59	−29 46 31.59	. . .
26 l. c.	29 31.71	+2.57	.383	5 28 19.90	257 27 37.16	− 75.21	46.61	+85 8 35.34	. . .
β Ophiuchi . . .	39 35.221	− .629	.389	17 38 20.203	347 40 39.32	+ 30.86	46.65	+ 4 36 36.47	25.40
ψ Draco. Aus. . .	45 7.14	−1.41	.392	17 43 51.34	280 6 17.50	− 33.44	46.66	+72 12 2.60	26.10
ν Ophiuchi . . .	54 33.094	− .571	.398	17 53 18.125	2 2 39.21	+ 51.59	46.70	− 9 45 44.10	26.32
91 . .	18 1 27.257	− .623	.402	18 0 12.232	349 45 50.97	+ 33.37	46.72	+ 2 31 22.38	. . .
22 H. Cam. S. P.	8 31.95	+ .10	.406	6 7 17.64	241 41 47.66	−157.54	46.74	+69 21 23.38	25.46
92 . .	15 35.231	− .485	.410	18 14 20.336	22 8 22.96	+113.33	46.77	−29 52 29.52	. . .
94 . .	22 48.271	− .510	.414	18 21 33.347	17 45 7.29	+ 92.95	46.79	−25 28 53.45	. . .
95 . .	30 48.058	− .586	.419	18 29 33.053	0 36 3.56	+ 49.02	46.82	− 8 19 5.76	. . .
222 . .	52 46.755	− .539	.433	18 51 31.783	13 31 11.86	+ 78.24	46.89	−21 14 43.21	. . .
223 . .	19 1 42.129	− .512	.438	19 0 27.179	20 5 32.36	+102.99	46.92	−27 49 28.43	. . .
98 . .	12 48.318	− .552	.444	19 11 33.322	11 24 58.33	+ 72.22	46.96	−19 8 23.59	. . .
99 . .	21 16.115	− .674	.450	19 20 0.987	340 34 11.06	+ 23.01	46.98	+11 43 12.91	. . .
100 . .	32 33.129	− .604	.456	19 31 18.069	359 32 37.05	+ 47.29	47.02	− 7 15 37.32	. . .
101 . .	37 38.210	− .699	.459	19 36 23.052	335 3 29.04	+ 17.59	47.04	+17 14 0.41	. . .
γ Aquilae . . .	42 34.386	− .671	.462	19 41 19.253	341 55 53.22	+ 24.48	47.06	+10 21 29.36	25.59
β Aquilae . . .	51 27.728	− .657	.468	19 50 12.603	346 8 34.49	+ 29.13	47.09	+ 6 8 43.47	25.32
102 . .	57 31.316	− .530	.471	19 56 16.315	20 16 5.73	+104.20	47.11	−28 0 2.82	. . .
Br. 1147 S. P. . .	20 7 35.84	+ .30	.477	8 6 21.66	248 24 16.28	−110.48	47.14	+76 4 38.66	25.34
$\varkappa$ Cephei	13 44.80	−1.63	.481	20 12 28.69	274 54 45.58	− 40.51	47.16	+77 23 42.09	25.20
ε Delphini . . .	29 30.129	− .681	.491	20 28 14.957	341 20 30.84	+ 23.95	47.21	+10 56 52.42	25.12
ε Aquarii . . .	43 18.215	− .612	−74.499	20 42 3.104	2 9 36.88	+ 52.11	47.26	− 9 52 41.73	25.87

c −ˢ.006 c' −ˢ.023 ΔT −1ᵐ 14ˢ.430 Nadir 134° 57′ 21″.22 at 18ʰ.6 t 72.3
b − .612 at 18ʰ 48ᵐ Equator 352 17 46 .88 at 18 .8 B 25.97
a − .174 at 18ʰ.2 Rate −ˢ.02 ρ − .036 Rate +0″.20 hourly T 72

JULY 24, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
A. Draconis . . .	16 29 30.28	−1.17	−75.122	16 28 13.99	283 18 29.48	− 29.68	46.38	+68 59 46.58	25.41
Gr. 848 S. P. . .	35 58.37	+ .19	.127	4 34 43.43	248 4 34.34	−112.10	46.38	+75 44 55.86	24.51
$\varkappa$ Ophiuchi . . .	54 0.565	− .687	.142	16 52 44.736	342 45 8.23	+ 25.40	46.38	+ 9 32 12.75	25.94
α Herculis . . .	17 11 10.295	− .702	.157	17 9 54.436	337 46 53.12	+ 20.29	46.38	+14 30 32.97	24.98
89 . .	21 58.467	− .558	.165	17 20 42.744	22 2 25.16	+113.27	46.38	−29 46 32.05	. . .
26 l. c.	29 33.74	+1.81	.172	5 28 20.38	257 27 35.59	− 75.44	46.38	+85 8 33.77	. . .
β Ophiuchi . . .	39 36.043	− .671	.180	17 38 20.192	347 40 38.95	+ 30.96	46.38	+ 4 36 36.47	25.53
ψ Draco. Aus. . .	45 7.82	−1.27	.184	17 43 51.37	280 6 15.98	− 33.56	46.38	+72 12 3.96	25.02
ν Ophiuchi . . .	54 33.908	− .627	.192	17 53 18.089	2 2 38.88	+ 51.80	46.38	− 9 45 44.30	26.58
91 . .	18 1 28.043	− .665	.198	18 0 12.180	349 45 50.07	+ 33.51	46.38	+ 2 31 22.80	. . .
22 H. Cam. S. P.	8 33.06	− .08	.204	6 7 17.78	241 41 47.72	−158.26	46.38	+69 21 23.08	25.36
92 . .	15 36.110	− .558	.210	18 14 20.342	22 8 22.42	+113.93	46.38	−29 52 29.97	. . .
94 . .	22 49.057	− .576	.216	18 21 33.265	17 45 6.76	+ 93.45	46.38	−25 28 53.83	. . .
95 . .	30 48.865	− .631	.223	18 29 33.011	0 36 4.91	+ 49.31	46.38	− 8 19 7.84	. . .
222 . .	52 47.583	− .590	.241	18 51 31.752	13 31 11.66	+ 78.76	46.38	−21 14 44.04	. . .
223 . .	19 1 42.965	− .567	.248	19 0 27.150	20 5 32.15	+103.59	46.38	−27 49 29.36	. . .
98 . .	12 49.154	− .597	.258	19 11 33.299	11 24 58.02	+ 72.59	46.38	−19 8 24.23	. . .
99 . .	21 16.922	− .694	.265	19 20 0.963	340 34 10.69	+ 23.12	46.38	+11 43 12.57	. . .
100 . .	32 34.001	− .634	.274	19 31 18.093	359 32 36.63	+ 47.46	46.38	− 7 15 37.71	. . .
101 . .	37 39.060	− .713	.278	19 36 23.069	335 3 27.95	+ 17.64	46.38	+17 14 0.79	. . .
γ Aquilae . . .	42 35.229	− .691	.282	19 41 19.256	341 55 52.52	+ 24.52	46.38	+10 21 29.34	25.81
β Aquilae . . .	51 28.564	− .676	.290	19 50 12.598	346 8 33.83	+ 29.16	46.38	+ 6 8 43.39	25.56
102 . .	57 32.159	− .567	.295	19 56 16.297	20 16 5.37	+104.21	46.38	−28 0 3.20	. . .
Br. 1147 S. P. . .	20 7 36.89	+ .22	.303	8 6 21.81	248 24 14.34	−110.34	46.38	+76 4 37.62	24.60
$\varkappa$ Cephei	13 45.51	−1.56	.309	20 12 28.64	274 54 43.96	− 40.43	46.38	+77 23 42.85	24.81
ε Delphini . . .	29 31.001	− .692	.322	20 28 14.987	341 20 30.14	+ 23.86	46.38	+10 56 52.38	25.38
ε Aquarii	43 19.072	− .627	−75.333	20 42 3.112	2 9 35.66	+ 51.87	46.38	− 9 52 41.15	25.39

c −ˢ.013 c' −ˢ.030 ΔT −1ᵐ 15ˢ.237 Nadir 134° 57′ 20″.73 t 71.2
b − .606 at 18ʰ 48ᵐ Equator 352 17 46 .38 B 25.97
a − .239 ρ − .050 T 72

JULY 25, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
A. Draconis	16 29 30.93	−1.01	−75.951	16 28 13.97	283 18 30.03	− 29.78	46.91	+68 59 46.66	25.34
Gr. 848 S. P.	35 59.63	− .18	.956	4 34 43.49	248 4 35.38	−112.50	46.90	+75 44 55.98	24.65
κ Ophiuchi	54 1.436	− .723	.971	16 52 44.742	342 45 8.80	+ 25.49	46.87	+ 9 32 12.58	26.08
α Herculis	17 11 11.123	− .743	.985	17 9 54.395	337 46 53.38	+ 20.34	46.85	+14 30 33.13	24.85
89	21 59.317	− .670	.994	17 20 42.653	22 2 24.90	+113.56	46.83	−29 46 31.63	. . .
26 l. c.	29 35.43	+ .79	−76.001	5 28 20.22	257 27 36.02	− 75.78	46.81	+85 8 33.43	. . .
β Ophiuchi	39 36.921	− .726	.009	17 38 20.186	347 40 39.56	+ 31.02	46.80	+ 4 36 36.22	25.74
ψ Draco. Aus.	45 8.34	−1.08	.014	17 43 51.25	280 6 16.35	− 33.62	46.79	+72 12 4.06	25.03
ν Ophiuchi	54 34.822	− .702	.021	17 53 18.099	2 2 38.78	+ 51.86	46.77	− 9 45 43.87	26.05
91	18 1 28.885	− .722	.027	18 0 12.136	349 45 50.45	+ 33.55	46.76	+ 2 31 22.76	. . .
22 H. Cam. S. P.	8 34.32	− .35	.033	6 7 17.94	241 41 46.67	−158.41	46.75	+69 21 21.51	23.86
92	15 36.995	− .669	.039	18 14 20.287	22 8 21.50	+113.95	46.74	−29 52 28.71	. . .
94	22 50.035	− .678	.044	18 21 33.313	17 45 6.78	+ 93.45	46.73	−25 28 53.49	. . .
95	30 49.779	− .704	.052	18 29 33.023	0 36 3.43	+ 49.29	46.71	− 8 19 6.01	. . .
222	52 48.483	− .684	.070	18 51 31.729	13 31 11.52	+ 78.73	46.67	−21 14 43.58	. . .
223	19 1 43.915	− .672	.077	19 0 27.166	20 5 31.99	+103.62	46.66	−27 49 28.95	. . .
98	12 50.118	− .688	.087	19 11 33.343	11 24 57.91	+ 72.62	46.64	−19 8 23.89	. . .
99	21 17.844	− .739	.094	19 20 1.011	340 34 10.37	+ 23.16	46.63	+11 43 13.10	. . .
100	32 34.894	− .707	.103	19 31 18.084	359 32 36.33	+ 47.58	46.61	− 7 15 37.30	. . .
101	37 39.974	− .749	.107	19 36 23.118	335 3 27.90	+ 17.68	46.60	+17 14 1.02	. . .
γ Aquilae	42 36.086	− .737	.112	19 41 19.237	341 55 52.22	+ 24.58	46.59	+10 21 29.79	25.43
β Aquilae	51 29.428	− .728	.118	19 50 12.582	346 8 33.60	+ 29.23	46.58	+ 6 8 43.75	25.24
102	57 33.109	− .673	.124	19 56 16.312	20 16 4.62	+104.46	46.57	−28 0 2.51	. . .
Br. 1147 S. P.	20 7 38.08	− .17	.132	8 6 21.78	248 24 14.90	−110.61	46.55	+76 4 37.74	24.98
κ Cephei	13 46.12	−1.25	.136	20 12 28.73	274 54 44.22	− 40.54	46.54	+77 23 42.86	25.02
ε Delphini	29 31.901	− .738	.151	20 28 15.012	341 20 30.24	+ 23.94	46.51	+10 56 52.33	25.54
ε Aquarii	43 19.994	− .704	−76.162	20 42 3.128	2 9 35.58	+ 52.06	46.49	− 9 52 41.15	25.33

c −s.016 c' −s.033 ΔT −1m 16s.066 Nadir 134° 57′ 21″.15 at 18h.7 t 68.0

b −.600 at 18h 48m Equator 352 17 46 .68 at 18 .8 B 25.85

a −.342 ρ −.050 Rate −0″.10 hourly T 69

JULY 26, 1895. CIR. W, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
α Ophiuchi	17 31 24.187	− .669	−76.985	17 30 6.533	339 39 16.23	+ 22.37	47.13	+12 38 8.53	25.63
β Ophiuchi	39 37.800	− .652	.994	17 38 20.154	347 40 38.99	+ 31.23	47.13	+ 4 36 36.91	25.31
ψ Draco. Aus.	45 9.34	−1.08	.999	17 43 51.26	280 6 16.84	− 33.84	47.13	+72 12 4.13	25.36
155	18 0 25.188	− .571	−77.014	17 59 7.603	22 41 30.74	+117.86	47.13	−30 25 41.47	. . .
22 H. Cam. S. P.	8 35.13	− .23	.022	6 7 17.88	241 41 47.93	−159.46	47.13	+69 21 21.34	24.03
93	18 33.892	− .562	.033	18 17 16.297	26 41 32.70	+145.62	47.13	−34 26 11.19	. . .
95	30 50.708	− .628	.044	18 29 33.036	0 36 3.88	+ 49.61	47.13	− 8 19 6.36	. . .
51 H. Cephei S. P.	52 27.45	+2.27	.066	6 51 12.65	259 31 39.39	− 70.27	47.13	+87 12 41.99	25.26
ω Aquilae	19 14 14.208	− .673	.088	19 12 56.447	340 53 0.43	+ 23.60	47.13	+11 24 23.10	26.25
δ Aquilae	21 33.271	− .657	.096	19 20 15.518	349 22 52.58	+ 33.27	47.13	+ 2 54 21.28	25.48
λ Urs. Min.	29 46.85	−8.26	.104	19 28 21.49	263 20 7.99	− 61.27	47.13	+88 58 40.41	24.77
β Aquilae	51 30.422	− .667	.126	19 50 12.629	346 8 34.06	+ 29.45	47.13	+ 6 8 43.62	25.67
102	57 34.059	− .598	.132	19 56 16.329	20 16 5.66	+105.33	47.13	−28 0 3.86	. . .
9 Aquilae	20 7 14.471	− .654	−77.141	20 5 56.676	353 25 2.52	+ 38.67	47.13	− 1 7 54.06	25.75

Magnitudes: Pallas, 8¾; Ceres, 8; Juno, 8¼.

c −s.003 c' −s.020 ΔT −1m 17s.071 Nadir 134° 57′ 21″.45 t 64.3

b −.573 at 18h 57m Equator 352 17 47 .13 B 25.84

a −.281 at 18h.5 Rate −s.01 ρ −.060 T 66

JULY 30, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
51 H. Cephei S.P.	18 52 32.01	+2.74	−81.271	6 51 13.48	259 31 42.96	− 72.42	49.25	+87 12 41.29	25.70
λ Aquilae . . .	19 2 5.957	− .617	.277	19 0 44.063	357 19 27.71	+ 45.59	49.25	− 5 2 24.05	25.77
ω Aquilae . . .	14 18.358	− .658	.284	19 12 56.416	340 53 0.88	+ 24.32	49.25	+11 24 24.05	25.99
δ Aquilae . . .	21 37.521	− .637	.289	19 20 15.595	349 22 52.72	+ 34.25	49.25	+ 2 54 22.28	25.02
λ Urs. Min. . .	29 50.07	−9.72	.294	19 28 19.06	263 20 11.07	− 63.00	49.25	+88 58 41.18	25.27
γ Aquilae . . .	42 41.258	− .655	.301	19 41 19.302	341 55 53.10	+ 25.42	49.25	+10 21 30.73	25.50
36 l. c.	53 34.61	+8.19	.308	7 52 21.49	261 15 43.07	− 67.77	49.25	+88 56 46.05	. . .
Br. 1147 S. P. . .	20 7 43.07	+ .04	.316	8 6 21.79	248 24 20.06	−114.23	49.25	+76 4 36.58	25.34
ε Delphini . . .	29 37.008	− .657	.330	20 28 15.021	341 20 31.44	+ 24.72	49.25	+10 56 53.09	25.86
107 . .	43 37.350	− .616	.338	20 42 15.396	357 41 39.31	+ 46.00	49.25	− 5 24 36.06	. . .
76 Draconis . .	51 38.04	−1.79	.343	20 50 14.91	270 10 4.09	− 49.38	49.25	+82 8 34.54	24.19
159 . .	57 42.011	− .519	.346	20 56 20.146	31 16 49.82	+200.74	49.25	−39 2 21.31	. . .
160 . .	21 13 0.590	− .541	.356	21 11 38.693	24 52 4.67	+134.83	49.25	−32 36 30.25	. . .
111 . .	22 3.41	−3.34	.361	21 20 38.71	265 42 38.77	− 57.74	49.25	+86 36 8.22	. . .
112 . .	33 35.279	− .608	.368	21 32 13.303	0 36 17.15	+ 50.89	49.25	− 8 19 18.79	. . .
ε Pegasi	40 26.951	− .654	.372	21 39 4.925	342 53 35.82	+ 26.40	49.25	+ 9 23 47.03	25.91
113 . .	48 59.959	− .595	.377	21 47 37.987	6 19 19.46	+ 62.17	49.25	−14 2 32.38	. . .
20 Pegasi	57 23.609	− .662	.382	21 56 1.565	339 40 14.36	+ 22.90	49.25	+12 37 11.99	24.84
24 Cephei . . .	22 9 12.87	−1.11	.389	22 7 50.37	280 28 55.83	− 34.12	49.25	+71 49 27.54	25.73
γ Aquarii . . .	17 39.328	− .625	.394	22 16 17.309	354 11 53.80	+ 40.56	49.25	− 1 54 45.11	25.57
9 H. Draco. S. P.	27 32.32	+ .05	−81.400	10 26 10.97	248 34 58.22	−112.87	49.25	+76 15 16.10	26.34

c −ˢ.003 *c′* −ˢ.020 ΔT −1ᵐ 21ˢ.329 Nadir 134° 57′ 23″.69 *t* 51.5
b − .571 at 20ʰ 28ᵐ Equator 352 17 49 .25 B 25.82
a − .256 *ρ* −.036 T 51

JULY 31, 1895. CIR. W, WT. 5, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
51 H. Cephei S.P.	18 52 29.49	+ 7.11	−82.340	6 51 14.26	259 31 37.82	− 70.86	46.22	+87 12 40.74	25.25
λ Aquilae . . .	19 2 6.814	− .426	.345	19 0 44.043	357 19 25.45	+ 44.62	46.22	− 5 2 23.85	25.48
ω Aquilae . . .	14 19.329	− .526	.352	19 12 56.451	340 52 58.03	+ 23.80	46.22	+11 24 24.39	25.65
δ Aquilae . . .	21 38.450	− .477	.357	19 20 15.616	349 22 50.26	+ 33.54	46.22	+ 2 54 22.42	24.83
λ Urs. Min. . .	30 0.79	−20.50	.362	19 28 17.93	263 20 6.31	− 61.72	46.22	+88 58 41.63	24.96
γ Aquilae . . .	42 42.151	− .525	.369	19 41 19.257	341 55 50.47	+ 24.92	46.22	+10 21 30.83	25.41
36 l. c.	53 22.71	+18.64	.376	7 52 18.97	261 15 38.09	− 66.47	46.22	+88 56 45.40	. . .
Br. 1147 S. P. . .	20 7 43.32	+ .95	.385	8 6 21.89	248 24 15.02	−112.10	46.22	+76 4 36.70	25.71
ε Delphini . . .	29 38.022	− .536	.398	20 28 15.088	341 20 28.37	+ 24.26	46.22	+10 56 53.59	25.40
107 . .	43 38.271	− .446	.406	20 42 15.419	357 41 36.67	+ 45.16	46.22	− 5 24 35.61	. . .
76 Draconis . .	51 40.60	− 2.89	.411	20 50 15.30	270 10 0.41	− 48.49	46.22	+82 8 34.30	24.67
159 . .	57 42.746	− .234	.414	20 56 20.098	31 16 49.97	+197.11	46.22	−39 2 20.86	. . .
160 . .	21 13 1.369	− .291	.424	21 11 38.654	24 52 4.64	+132.39	46.22	−32 36 30.81	. . .
111 . .	22 7.11	− 5.94	.429	21 20 38.74	265 42 34.42	− 56.55	46.22	+86 36 8.35	. . .
112 . .	33 36.236	− .443	.436	21 32 13.357	0 36 15.05	+ 49.81	46.22	− 8 19 18.64	. . .
ε Pegasi	40 27.922	− .539	.440	21 39 4.943	342 53 33.15	+ 25.83	46.22	+ 9 23 47.24	25.74
113 . .	49 0.909	− .416	.445	21 47 38.048	6 19 17.10	+ 60.87	46.22	−14 2 31.75	. . .
20 Pegasi	57 24.573	− .559	.450	21 56 1.564	339 40 11.92	+ 22.43	46.22	+12 37 11.87	25.01
24 Cephei . . .	22 9 14.31	− 1.43	.457	22 7 50.42	280 28 52.26	− 33.45	46.22	+71 49 27.41	26.08
γ Aquarii . . .	17 40.285	− .485	.462	22 16 17.338	354 11 51.24	+ 39.79	46.22	− 1 54 44.81	25.26
9 H. Draco. S. P.	27 32.73	+ .79	−82.468	10 26 11.05	248 34 52.89	−110.78	46.22	+76 15 15.89	26.26

Magnitudes: Pallas, 8¼; Vesta, 6¼.

c −ˢ.006 *c′* −ˢ.023 ΔT −1ᵐ 22ˢ.397 Nadir 134° 57′ 20″.87 *t* 62.9
b − .552 at 20ʰ 28ᵐ Equator 352 17 46 .22 B 25.90
a − .023 at 20ʰ.7 Rate −ˢ.02 *ρ* −.036 T 63

AUGUST 5, 1895. CIR. W, WT. 5, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
51 H. Cephei S.P.	18 52 38.85	+ 4.34	−87.438	6 51 15.75	259 31 32.92	− 68.95	44.73	+87 12 39.24	25.05
λ Aquilae . . .	19 2 12.028	− .548	.443	19 0 44.037	357 19 24.59	+ 43.41	44.73	− 5 2 23.27	25.25
ω Aquilae . . .	14 24.494	− .610	.450	19 12 56.434	340 52 56.63	+ 23.15	44.73	+11 24 24.95	25.83
δ Aquilae . . .	21 43.685	− .579	.455	19 20 15.651	349 22 49.36	+ 32.63	44.73	+ 2 54 22.74	25.13
λ Urs. Min. . .	29 55.85	−13.36	.460	19 28 15.03	263 20 2.05	− 60.03	44.73	+88 58 42.71	25.42
γ Aquilae . . .	42 47.415	− .612	.468	19 41 19.335	341 55 48.68	+ 24.24	44.73	+10 21 31.81	25.17
36 l. c.	53 41.29	+11.51	.474	7 52 25.33	261 15 33.38	− 64.69	44.73	+88 56 43.96	. . .
Br. 1147 S. P. . .	20 7 49.38	+ .34	.483	8 6 22.24	248 24 8.50	−109.11	44.73	+76 4 34.36	25.11
ε Delphini . . .	29 43.215	− .620	.496	20 28 15.099	341 20 26.71	+ 23.62	44.73	+10 56 54.40	25.45
107 . .	43 43.507	− .569	.504	20 42 15.434	357 41 36.26	+ 43.96	44.73	− 5 24 35.49	. . .
76 Draconis . .	51 44.14	− 2.06	.509	20 50 14.57	270 9 55.64	− 47.22	44.73	+82 8 36.31	24.49
159 . .	57 48.175	− .452	.513	20 56 20.210	31 16 53.49	+191.76	44.73	− 39 2 20.52	. . .
160 . .	21 13 6.769	− .485	.522	21 11 38.762	24 52 5.45	+129.04	44.73	− 32 36 29.76	. . .
111 . .	22 9.81	− 3.88	.527	21 20 38.40	265 42 29.71	+ 55.16	44.73	+86 36 10.18	. . .
112 . .	33 41.494	− .571	.534	21 32 13.389	0 36 13.95	+ 48.64	44.73	− 8 19 17.86	. . .
ε Pegasi	40 33.208	− .626	.538	21 39 5.044	342 53 31.10	+ 25.25	44.73	+ 9 23 48.38	25.56
113 . .	49 6.166	− .559	.543	21 47 38.064	6 19 16.88	+ 59.50	44.73	− 14 2 31.65	. . .
20 Pegasi	57 29.823	− .639	.548	21 56 1.636	339 40 9.81	+ 21.93	44.73	+12 37 12.99	24.99
24 Cephei . . .	22 9 19.28	− 1.16	.556	22 7 50.56	280 28 47.43	− 32.71	44.73	+71 49 30.01	25.37
γ Aquarii . . .	17 45.585	− .600	.560	22 16 17.425	354 11 50.13	+ 38.92	44.73	− 1 54 44.32	25.50
9 H. Draco. S. P.	27 38.36	+ .16	−87.566	10 26 10.95	248 34 46.66	−108.35	44.73	+76 15 13.58	25.64

c −s.010 c' −s.027 ΔT −1m 27s.495 Nadir 134° 57′ 19″.37 t 75.9
b − .555 at 20h 28m Equator 352 17 44 .73 B 25.90
a − .194 at 20h.7 Rate −s.02 ρ −.036 T 76

AUGUST 8, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
51 H. Cephei S. P.	18 52 44.73	+1.88	−89.906	6 51 16.70	259 31 35.24	− 70.04	46.57	+87 12 38.63	25.07
λ Aquilae . . .	19 2 14.543	− .633	.911	19 0 43.999	357 19 26.24	+ 44.09	46.57	− 5 2 23.76	25.79
ω Aquilae . . .	14 26.979	− .661	.918	19 12 56.400	340 52 57.46	+ 23.52	46.57	+11 24 25.59	25.47
δ Aquilae . . .	21 46.157	− .650	.922	19 20 15.585	349 22 50.33	+ 33.13	46.57	+ 2 54 23.11	24.94
λ Urs. Min. . .	29 49.25	−6.90	.927	19 28 12.42	263 20 3.32	− 60.94	46.57	+88 58 44.19	24.72
γ Aquilae . . .	42 49.951	− .666	.934	19 41 19.351	341 55 50.25	+ 24.59	46.57	+10 21 31.73	25.54
36 l. c.	53 50.41	+5.13	.940	7 52 25.60	261 15 35.35	− 65.70	46.57	+88 56 43.08	. . .
Br. 1147 S. P. . .	20 7 52.43	− .20	.953	8 6 22.28	248 24 11.47	−110.91	46.57	+76 4 33.99	25.17
ε Delphini . . .	29 45.765	− .678	.961	20 28 15.126	341 20 27.04	+ 24.01	46.57	+10 56 55.52	24.67
107 . .	43 46.071	− .661	.968	20 42 15.442	357 41 37.05	+ 44.68	46.57	− 5 24 35.16	. . .
76 Draconis . .	51 45.65	−1.32	.974	20 50 14.36	270 9 57.48	− 47.98	46.57	+82 8 37.07	24.55
159 . .	57 50.853	− .629	.977	20 56 20.247	31 16 52.75	+195.02	46.57	− 39 2 21.20	. . .
160 . .	21 13 9.440	− .642	.985	21 11 38.813	24 52 5.78	+131.02	46.57	− 32 36 30.23	. . .
111 . .	22 9.91	−2.10	.990	21 20 37.82	265 42 31.39	− 56.01	46.57	+86 36 11.19	. . .
112 . .	33 44.158	− .673	.997	21 32 13.488	0 36 15.03	+ 49.40	46.57	− 8 19 17.86	. . .
ε Pegasi	40 35.794	− .692	−90.001	21 39 5.101	342 53 32.48	+ 25.64	46.57	+ 9 23 48.45	25.85
113 . .	49 8.830	− .673	.005	21 47 38.152	6 19 17.94	+ 60.38	46.57	− 14 2 31.75	. . .
20 Pegasi	57 32.366	− .700	.011	21 56 1.655	339 40 10.76	+ 22.24	46.57	+12 37 13.57	24.85
24 Cephei . . .	22 9 21.61	− .90	.017	22 7 50.69	280 28 48.70	− 33.13	46.57	+71 49 31.00	25.28
γ Aquarii . . .	17 48.150	− .691	.021	22 16 17.438	354 11 51.05	+ 39.36	46.57	− 1 54 43.84	25.23
9 H. Draco. S. P.	27 41.29	− .36	−90.028	10 26 10.90	248 34 48.46	+109.53	46.57	+76 15 12.36	25.20

c −s.013 c' −s.030 ΔT −1m 29s.960 Nadir 134° 57′ 21″.28 t 64.4
b − .546 at 20h.6 Rate −s.005 at 20h 28m Equator 352 17 46 .57 B 25.71
a − .335 at 20 .7 Rate − .02 ρ −.034 T 66

AUGUST 12, 1895. CIR. W, WT. 5, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
δ Aquilae . . .	19 21 48.907	− .482	−92.906	19 20 15.519	349 22 48.05	+ 32.96	44.69	+ 2 54 23.68	25.04
λ Urs. Min. . . .	30 3.29	−19.98	.911	19 28 10.40	263 20 0.16	− 60.64	44.69	+88 58 45.17	25.11
γ Aquilae . . .	42 52.736	− .529	.919	19 41 19.288	341 55 47.70	+ 24.28	44.69	+10 21 32.51	25.60
Gr. 1374 S. P. . .	49 11.37	+ .77	.922	7 47 39.22	246 31 33.54	−120.78	44.69	+74 11 48.07	24.88
ϑ Aquilae . . .	20 7 30.143	− .467	.933	20 5 56.743	353 24 58.42	+ 38.19	44.69	− 1 7 51.92	25.30
104 . .	22 55.882	− .371	.943	20 21 22.568	10 49 48.86	+ 70.81	44.69	−18 33 14.98	. . .
105 . .	32 5.01	− 1.49	.948	20 30 30.57	280 7 37.70	− 33.45	44.69	+72 10 40.44	. . .
106 . .	41 30.221	− .335	.954	20 39 56.932	17 54 57.32	+ 93.79	44.69	−25 38 46.42	. . .
108 . .	48 36.544	− .432	.958	20 47 3.154	1 39 22.20	+ 50.95	44.69	− 9 22 28.46	. . .
109 . .	21 1 39.988	− .390	.966	21 0 6.632	9 55 26.55	+ 68.39	44.69	−17 38 50.25	. . .
Br. 2777	9 14.00	− 1.94	.970	21 7 39.09	274 36 18.30	− 40.80	44.69	+77 42 7.19	26.14
110 . .	14 54.155	− .737	.974	21 13 20.444	313 20 19.81	− 1.36	44.69	+38 57 26.24	. . .
1 H. Draco. S. P.	23 37.92	+ 1.74	.979	9 22 6.68	254 6 31.13	− 85.90	44.69	+81 47 20.54	25.22
ε Pegasi	40 38.608	− .542	.989	21 39 5.077	342 53 29.46	+ 25.51	44.69	+ 9 23 49.72	25.48
114 . .	53 11.05	− 1.50	.997	21 51 36.55	279 5 52.95	− 34.77	44.69	+73 12 26.51	. . .
ϑ Aquarii . . .	22 12 54.693	− .458	−93.009	22 11 21.226	0 35 1.71	+ 49.17	44.69	− 8 18 6.19	25.57
γ Aquarii . . .	17 50.950	− .491	.012	22 16 17.447	354 11 48.97	+ 39.30	44.69	− 1 54 43.58	25.61
9 H. Draco. S. P.	27 42.97	+ .74	.018	10 26 10.69	248 34 45.06	−109.38	44.69	+76 15 10.99	25.27
λ Aquarii . . .	48 45.214	− .468	.030	22 47 11.716	0 24 55.39	+ 48.83	44.69	− 8 7 59.53	25.12
α Pegasi	23 1 8.637	− .582	.038	22 59 35.017	337 38 44.28	+ 20.11	44.69	+14 38 40.30	25.95
π Cephei	6 11.73	− 1.57	−93.041	23 4 37.12	277 29 5.50	− 36.85	44.69	+74 49 16.04	25.52

c −ˢ.003 *c′* −ˢ.020 ΔT −1ᵐ 32ˢ.979 Nadir 134° 57′ 19″.23 *t* 70.0
b − .554 at 21ʰ 24ᵐ Equator 352 17 44 .69 B 25.86
a − .040 at 21ʰ.2 Rate −ˢ.02 *ρ* − .036 T 70

AUGUST 14, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
λ Aquilae . . .	19 2 18.678	− .432	−94.293	19 0 43.953	357 19 23.08	+ 43.76	44.00	− 5 2 22.84	25.66
λ Urs. Min. . .	30 2.11	−19.08	.304	19 28 8.73	263 19 58.72	− 60.55	44.09	+88 58 45.92	25.10
γ Aquilae . . .	42 54.108	− .523	.309	19 41 19.276	341 55 46.52	+ 24.46	44.14	+10 21 33.16	25.43
Gr. 1374 S. P. . .	49 12.96	+ .72	.312	7 47 39.37	246 31 32.78	−120.64	44.16	+74 11 47.98	25.49
ϑ Aquilae . . .	20 7 31.514	− .467	.319	20 5 56.728	353 24 57.59	+ 38.15	44.22	− 1 7 51.52	25.28
104 . .	22 57.304	− .379	.325	20 21 22.600	10 49 49.08	+ 70.74	44.27	−18 33 15.55	. . .
105 . .	32 6.38	− 1.44	.329	20 30 30.61	280 7 36.56	− 33.43	44.30	+72 10 41.17	. . .
106 . .	41 31.635	− .345	.333	20 39 56.957	17 54 57.47	+ 93.77	44.33	−25 38 46.91	. . .
108 . .	48 37.879	− .434	.336	20 47 3.109	1 39 22.12	+ 50.96	44.35	− 9 22 28.73	. . .
109 . .	21 1 41.460	− .394	.341	21 0 6.725	9 55 26.21	+ 68.44	44.40	−17 38 50.25	. . .
Br. 2777	9 15.25	− 1.87	.344	21 7 39.04	274 36 17.57	− 40.84	44.42	+77 42 7.69	26.55
110 . .	14 55.596	− .720	.346	21 13 20.530	313 20 19.17	− 1.36	44.44	+38 57 26.63	. . .
1 H. Draco. S. P.	23 39.55	+ 1.63	.349	9 22 6.83	254 6 30.62	− 85.97	44.47	+81 47 20.18	25.73
ε Pegasi	40 40.015	− .538	.356	21 39 5.121	342 53 29.33	+ 25.52	44.53	+ 9 23 49.68	26.05
114 . .	53 12.51	− 1.45	.361	21 51 36.70	279 5 51.43	− 34.78	44.57	+73 12 27.92	. . .
ϑ Aquarii . . .	22 12 56.071	− .459	.369	22 11 21.243	0 35 1.21	+ 49.16	44.64	− 8 18 5.73	25.42
γ Aquarii . . .	17 52.428	− .491	.371	22 16 17.566	354 11 48.52	+ 39.31	44.65	− 1 54 43.20	25.62
9 H. Draco. S. P.	27 44.50	+ .69	.375	10 26 10.82	248 34 45.39	−109.43	44.69	+76 15 11.27	26.35
λ Aquarii . . .	48 46.578	− .469	.383	22 47 11.726	0 24 54.99	+ 48.92	44.76	− 8 7 59.15	25.07
α Pegasi	23 1 9.987	− .575	.389	22 59 35.023	337 38 43.72	+ 20.16	44.80	+14 38 40.92	25.95
π Cephei	6 13.11	− 1.50	−94.390	23 4 37.22	277 29 5.08	− 36.95	44.81	+74 49 16.68	25.79

c −ˢ.006 *c′* −ˢ.023 ΔT −1ᵐ 34ˢ.348 Nadir 134° 57′ 18″.93 at 21ʰ.4 *t* 71.5
b − .539 at 21ʰ 22ᵐ Equator 352 17 44 .48 at 21 .4 B 25.94
a − .053 at 21ʰ.0 Rate −ˢ.02 *ρ* − .024 Rate +0″.20 hourly T 73

AUGUST 16, 1895. CIR. W, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
δ Aquilae	19 21 51.943	− .587	−95.817	19 20 15.539	349 22 47.76	+ 32.94	44.78	+ 2 54 24.08	25.24
λ Urs. Min.	29 59.22	−16.53	.822	19 28 6.87	263 19 59.14	− 60.61	44.78	+88 58 46.25	25.43
γ Aquilae	42 55.751	− .625	.832	19 41 19.294	341 55 47.11	+ 24.47	44.78	+10 21 33.20	25.74
Gr. 1374 S. P.	49 14.93	+ .45	.837	7 47 39.54	246 31 32.63	−120.70	44.78	+74 11 47.15	25.28
ϑ Aquilae	20 7 33.157	− .578	.851	20 5 56.728	353 24 57.99	+ 38.16	44.78	− 1 7 51.37	25.40
104	22 59.018	− .509	.863	20 21 22.646	10 49 49.37	+ 70.72	44.78	−18 33 15.31	. . .
105	32 7.77	− 1.40	.869	20 30 30.50	280 7 36.44	− 33.40	44.78	+72 10 41.74	. . .
106	41 33.341	− .483	.877	20 39 56.981	17 54 57.75	+ 93.65	44.78	−25 38 46.62	. . .
108	48 39.658	− .554	.882	20 47 3.222	1 39 22.17	+ 50.86	44.78	− 9 22 28.25	. . .
109	21 1 43.124	− .525	.891	21 0 6.708	9 55 26.45	+ 68.28	44.78	−17 38 49.95	. . .
Br. 2777	9 16.68	− 1.75	.897	21 7 39.03	274 36 16.12	− 40.73	44.78	+77 42 9.39	25.67
110	14 57.196	− .787	.902	21 13 20.507	313 20 18.74	− 1.35	44.78	+38 57 27.39	. . .
1 H. Draco. S. P.	23 41.92	+ 1.19	.907	9 22 7.20	254 6 29.33	− 85.71	44.78	+81 47 18.84	25.20
ε Pegasi	40 41.694	− .639	.921	21 39 5.134	342 53 28.67	+ 25.44	44.78	+ 9 23 50.67	25.51
114	53 13.91	− 1.40	.930	21 51 36.58	279 5 51.36	− 34.66	44.78	+73 12 28.08	. . .
ϑ Aquarii	22 12 57.878	− .579	.945	22 11 21.354	0 35 1.47	+ 48.96	44.78	− 8 18 5.65	25.59
γ Aquarii	17 54.107	− .604	.949	22 16 17.554	354 11 48.67	+ 39.14	44.78	− 1 54 43.03	25.80
9 H. Draco. S. P.	27 46.46	+ .39	.956	10 26 10.89	248 34 44.14	−108.94	44.78	+76 15 10.42	26.27
λ Aquarii	48 48.364	− .588	.972	22 47 11.804	0 24 55.31	+ 48.63	44.78	− 8 7 59.16	25.37
α Pegasi	23 1 11.673	− .671	.981	22 59 35.021	337 38 43.49	+ 20.03	44.78	+14 38 41.26	26.14
π Cephei	6 14.74	− 1.43	−95.984	23 4 37.33	277 29 3.54	− 36.70	44.78	+74 49 17.94	25.38

c −s.016 c' −s.033 ΔT −1m 35s.907 Nadir 134° 57′ 19″.18 t 72.6
b − .584 at 21h 24m Equator 352 17 44 .78 B 25.93
a − .156 at 20h.8 Rate −s.02 ρ −.045 T 72

AUGUST 21, 1895. CIR. W, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R.A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
δ Aquilae	19 21 56.121	− .619	−100.012	19 20 15.490	349 22 48.53	+ 33.55	46.40	+ 2 54 24.32	25.36
λ Urs. Min.	29 49.73	− 7.81	.020	19 28 1.90	263 20 0.66	− 61.79	46.40	+88 58 47.53	25.41
γ Aquilae	42 59.919	− .633	.033	19 41 19.249	341 55 47.27	+ 24.97	46.40	+10 21 34.16	25.33
Gr. 1374 S. P.	49 19.93	− .13	.039	7 47 39.76	246 31 34.47	−123.06	46.40	+74 11 45.01	24.31
ϑ Aquilae	20 7 37.407	− .611	.057	20 5 56.739	353 24 58.60	+ 38.93	46.40	− 1 7 51.13	25.47
104	23 3.332	− .578	.073	20 21 22.681	10 49 49.32	+ 72.35	46.40	−18 33 15.27	. . .
105	32 11.31	− 1.00	.082	20 30 30.23	280 7 36.28	− 34.21	46.40	+72 10 44.33	. . .
106	41 37.585	− .563	.092	20 39 56.930	17 54 57.41	+ 95.99	46.40	−25 38 47.00	. . .
108	48 43.922	− .596	.099	20 47 3.227	1 39 22.15	+ 52.19	46.40	− 9 22 27.94	. . .
109	21 1 47.424	− .579	.112	21 0 6.733	9 55 26.18	+ 70 07	46.40	−17 38 49.85	. . .
Br. 2777	9 20.15	− 1.19	.119	21 7 38.84	274 36 17.16	− 41.78	46.40	+77 42 11.02	25.78
110	15 1.311	− .708	.125	21 13 20.478	313 20 18.84	− 1.39	46.40	+38 57 28.95	. . .
1 H. Draco. S. P.	23 47.29	+ .32	.134	9 22 7.48	254 6 31.38	− 87.80	46.40	+81 47 17.18	25.20
ε Pegasi	40 45.944	− .632	.151	21 39 5.161	342 53 29.24	+ 26.06	46.40	+ 9 23 51.10	25.83
114	53 17.63	− 1.03	.163	21 51 36.44	279 5 52.26	− 35.56	46.40	+73 12 29.70	. . .
ϑ Aquarii	22 13 2.128	− .597	.183	22 11 21.348	0 35 1.52	+ 50.23	46.40	− 8 18 5.35	25.56
γ Aquarii	17 58.435	− .610	.188	22 16 17.637	354 11 48.90	+ 40.15	46.40	− 1 54 42.65	25.93
9 H. Draco. S. P.	27 51.00	− .06	.198	10 26 10.74	248 34 46.34	−111.76	46.40	+76 15 8.18	25.88
λ Aquarii	48 52.700	− .598	.219	22 47 11.883	0 24 55.12	+ 49.89	46.40	− 8 7 58.61	25.20
α Pegasi	23 1 16.023	− .644	.231	22 59 35.148	337 38 43.73	+ 20.55	46.40	+14 38 42.12	26.29
π Cephei	6 18.51	− 1.08	−100.236	23 4 37.19	277 29 4.24	− 37.67	46.40	+74 49 19.83	25.36

c −s.003 c' −s.020 ΔT −1m 40s.134 Nadir 134° 57′ 20″.78 t 59.5
b − .539 at 21h 24m Equator 352 17 46.40 B 25.85
a − .272 ρ −.060 T 61

SEPTEMBER 4, 1895. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
ε Delphini . . .	20 28 22.893	− .361	−7.480	20 28 15.052	288 32 39.26	− 24.66	16.20	+10 56 58.40	25.96
ε Aquarii . . .	42 11.036	− .253	.492	20 42 3.291	267 43 30.78	− 53.73	16.20	− 9 52 39.15	25.48
76 Draconis . .	50 22.84	−2.48	.498	20 50 12.86	359 43 12.57	+ 49.46	16.20	+82 8 45.83	25.43
159 . .	56 27.828	− .066	.503	20 56 20.259	238 36 12.35	−201.35	16.20	− 39 2 25.20	. . .
160 . .	21 11 46.458	− .116	.515	21 11 38.827	245 0 59.62	−135.34	16.20	− 32 36 31.92	. . .
1 H. Draco. S. P.	22 14.12	+1.79	.524	9 22 8.39	15 46 35.15	+ 89.07	16.20	+81 47 11.98	24.67
ε Pegasi	39 13.015	− .352	.537	21 39 5.126	286 59 35.95	− 26.39	16.20	+ 9 23 53.36	25.40
161 . .	47 46.723	− .077	.544	21 47 39.102	239 47 1.14	−184.53	16.20	− 37 51 19.59	. . .
20 Pegasi	56 9.764	− .369	.551	21 56 1.844	290 12 57.76	− 22.89	16.20	+12 37 18.67	24.80
24 Cephei . . .	22 7 59.35	−1.21	.560	22 7 50.58	349 24 23.12	+ 34.17	16.20	+71 49 41.09	25.64
145 l. c.	14 25.93	+3.00	.566	10 14 21.36	12 47 2.12	+ 78.96	16.20	+84 46 55.12	. . .
9 H. Draco. S. P.	26 17.85	+ .94	.574	10 26 11.22	21 18 20.03	+113.00	16.20	+76 15 3.17	25.58
λ Aquarii . . .	47 19.901	− .262	.592	22 47 12.047	269 28 8.73	− 50.41	16.20	− 8 7 57.88	25.11
α Pegasi	59 43.284	− .380	.602	22 59 35.302	292 14 21.73	− 20.75	16.20	+14 38 44.78	26.10
163 . .	23 13 21.436	− .113	.612	23 13 13.711	244 31 39.91	−138.15	16.20	− 33 5 54.44	. . .
κ Piscium . . .	21 44.566	− .307	.619	23 21 36.640	278 17 5.17	− 36.90	16.20	+ 0 41 12.07	25.71
164 . .	27 32.807	− .072	.624	23 27 25.111	239 14 52.30	−191.12	16.20	− 38 23 35.02	. . .
γ Cephei . . .	35 16.29	−1.60	.630	23 35 7.06	354 37 34.39	+ 41.18	16.20	+77 2 59.37	24.93
ω Piscium . . .	54 6.665	− .336	.645	23 53 58.684	283 53 3.68	− 29.88	16.20	+ 6 17 17.60	25.71
4 H. Draco. S. P.	0 7 22.70	+1.14	−7.656	12 7 16.18	19 21 41.85	+103.34	16.20	+78 11 51.01	25.19

c +ˢ.010 c' −ˢ.007 ΔT −7ˢ.564 Nadir 134° 55′ 41″.73 t 53.3
b − .414 at 22ʰ 13ᵐ Equator 277 35 16 .20 B 25.85
a + .054 ρ −.048 T 54

SEPTEMBER 6, 1895. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
ε Delphini . . .	20 28 24.771	− .311	−9.499	20 28 14.961	288 32 39.15	− 24.06	15.78	+10 56 59.31	25.06
ε Aquarii . . .	42 12.922	− .172	.513	20 42 3.237	267 43 28.76	− 52.35	15.78	− 9 52 39.37	25.50
76 Draconis . .	50 25.24	−3.04	.521	20 50 12.68	359 43 13.48	+ 48.14	15.78	+82 8 45.84	25.82
(1) 159 . .	56 29.642	+ .070	.527	20 56 20.185	238 36 7.47	−195.74	15.78	− 39 2 24.05	. . .
160 .	21 11 48.387	+ .006	.543	21 11 38.850	245 0 54.10	−131.66	15.78	− 32 36 33.34	. . .
1 H. Draco. S. P.	22 15.80	+2.46	.553	9 22 8.71	15 46 37.04	+ 86.77	15.78	+81 47 11.97	25.07
ε Pegasi	39 15.058	− .301	.570	21 39 5.187	286 59 34.76	− 25.76	15.78	+ 9 23 53.22	25.54
161 . .	47 48.558	+ .056	.579	21 47 39.035	239 46 54.84	−180.08	15.78	− 37 51 21.02	. . .
20 Pegasi	56 11.771	− .322	.587	21 56 1.862	290 12 56.46	− 22.33	15.78	+12 37 18.35	25.16
24 Cephei . . .	22 8 1.54	−1.41	.599	22 7 50.53	349 24 23.76	+ 33.30	15.78	+71 49 41.28	25.93
145 l. c.	14 27.29	+4.02	.606	10 14 21.70	12 47 4.28	+ 76.97	15.78	+84 46 54.53	. . .
9 H. Draco. S. P.	26 19.46	+1.36	.617	10 26 11.20	21 18 22.87	+110.21	15.78	+76 15 2.70	25.54
λ Aquarii . . .	47 21.865	− .184	.638	22 47 12.043	269 28 7.01	− 49.24	15.78	− 8 7 58.01	25.03
α Pegasi	59 45.333	− .337	.651	22 59 35.345	292 14 21.33	− 20.28	15.78	+14 38 45.27	25.67
(2) 163 . .	23 13 23.421	+ .009	.664	23 13 13.766	244 31 36.94	−135.03	15.78	− 33 5 53.87	. . .
164 . .	27 34.672	+ .062	.679	23 27 25.055	239 14 47.62	−186.80	15.78	− 38 23 34.96	. . .
γ Cephei . . .	35 18.53	−1.91	.686	23 35 6.93	354 37 35.99	+ 40.27	15.78	+77 3 0.48	24.33
ω Piscium . . .	54 8.679	− .279	.705	23 53 58.695	283 53 2.89	− 29.21	15.78	+ 6 17 17.90	25.38
4 H. Draco. S. P.	0 7 24.00	+1.62	−9.718	12 7 15.90	19 21 44.56	+100.97	15.78	+78 11 50.25	24.86

(1) 7½ mag. through clouds.
(2) Barely visible.

c +ˢ.010 c' −ˢ.007 ΔT −9ˢ.595 Nadir 134° 55′ 41″.11 t 65.5
b − .414 at 22ʰ 4ᵐ Equator 277 35 15 .78 B 25.86
a + .163 ρ −.060 T 67

SEPTEMBER 19, 1895. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ε Delphini	20 28 14.735	− .275	+0.412	20 28 14.872	288 32 39.70	− 24.71	14.89	+10 57 0.10	25.74
ε Aquarii	42 2.879	− .142	.405	20 42 3.142	269 43 29.16	− 53.74	14.89	− 9 52 39.47	25.80
76 Draconis	50 13.62	−2.99	.401	20 50 11.03	359 43 15.43	+ 49.41	14.89	+82 8 49.95	25.77
159	56 19.663	+ .084	.398	20 56 20.145	238 36 9.48	−200.98	14.89	−39 2 26.39	. . .
160	21 11 38.344	+.017	.390	21 11 38.751	245 0 55.81	−134.98	14.89	−32 36 34.06	. . .
1 H. Draco. S. P.	22 7.04	+2.49	.384	9 22 9.91	15 46 38.42	+ 88.86	14.89	+81 47 7.61	25.21
ε Pegasi	39 5.029	− .276	.376	21 39 5.129	286 59 36.21	− 26.35	14.89	+ 9 23 54.97	25.42
161	47 38.708	+ .051	.372	21 47 39.131	239 46 57.33	−184.54	14.89	−37 51 22.10	. . .
20 Pegasi	56 1.778	− .300	.368	21 56 1.846	290 12 58.00	− 22.89	14.89	+12 37 20.22	25.17
24 Cephei	22 7 51.24	−1.32	.362	22 7 50.28	—			(+71 49 ——)	
145 l. c.	14 18.83	+3.78	.359	10 14 22.97	12 47 6.32	+ 78.96	14.89	+84 46 49.61	. . .
9 H. Draco. S. P.	26 10.16	+1.26	.353	10 26 11.78	21 18 23.69	+113.09	14.89	+76 14 58.11	25.87
λ Aquarii	47 11.915	− .183	.342	22 47 12.074	269 28 7.71	− 50.50	14.89	− 8 7 57.68	25.05
α Pegasi	59 35.320	− .322	.336	22 59 35.334	292 14 22.99	− 20.79	14.89	+14 38 47.31	25.80
163	23 13 13.479	− .023	.329	23 13 13.785	244 31 38.38	−138.41	14.89	−33 5 54.92	. . .
κ Piscium	21 36.652	− .242	.325	23 21 36.735	278 17 4.96	− 36.97	14.89	+ 0 41 13.10	25.73
164	27 24.843	+ .016	.322	23 27 25.181	239 14 49.48	−191.52	14.89	−38 23 36.93	. . .
γ Cephei	35 8.52	−1.72	.318	23 35 7.12	354 37 39.11	+ 41.26	14.89	+77 3 5.48	24.62
ω Piscium	53 58.794	− .279	.309	23 53 58.824	283 53 4.27	− 29.90	14.89	+ 6 17 19.48	25.44
4 H Draco. S. P.	0 7 14.17	+1.37	+0.302	12 7 15.84	19 21 46.76	+103.34	14.89	+78 11 44.79	24.55

Clock cleaned September 8th.

c s.000 c' −s.017 ΔT +0s.359 Nadir 134° 55′ 40″.41 t 50.8

b − .375 at 22h 14m Equator 277 35 14.89 B 25.70

a + .147 at 22h.4 Rate −s.02 ρ −.030 T 50

SEPTEMBER 23, 1895. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ε Delphini	20 28 15.907	− .267	−0.818	20 28 14.822	288 32 41.74	− 24.42	16.19	+10 57 1.13	24.90
ε Aquarii	42 4.079	− .144	.825	20 42 3.110	267 43 31.07	− 53.12	16.19	− 9 52 38.24	24.43
76 Draconis	50 13.98	−2.66	.829	20 50 10.49	359 43 18.27	+ 48.84	16.19	+82 8 50.92	25.78
159	56 20.763	+ .070	.832	20 56 20.001	238 36 7.95	−198.59	16.19	−39 2 26.83	. . .
160	21 11 39.451	+ .012	.840	21 11 38.623	245 0 55.18	−133.50	16.19	−32 36 34.51	. . .
1 H. Draco. S. P.	22 9.06	+2.16	.845	9 22 10.38	15 46 41.50	+ 87.95	16.19	+81 47 6.74	25.47
ε Pegasi	39 6.136	− .257	.854	21 39 5.025	286 59 37.41	− 26.09	16.19	+ 9 23 55.13	25.52
161	47 39.858	+ .058	.858	21 47 39.058	239 46 55.99	−182.61	16.19	−37 51 22.81	. . .
20 Pegasi	56 2.935	− .277	.862	21 56 1.796	290 12 58.94	− 22.65	16.19	+12 37 20.10	25.58
24 Cephei	22 7 52.30	−1.23	.868	22 7 50.20	349 24 29.86	+ 33.79	16.19	+71 49 47.46	25.81
145 l. c.	14 20.47	+3.52	.871	10 14 23.12	12 47 8.96	+ 78.12	16.19	+84 46 49.11	. . .
9 H. Draco. S. P.	26 11.51	+1.20	.877	10 26 11.83	21 18 27.53	+111.90	16.19	+76 14 56.76	25.84
λ Aquarii	47 13.186	− .154	.888	22 47 12.144	269 28 8.26	− 49.93	16.19	− 8 7 57.86	25.03
α Pegasi	59 36.542	− .289	.894	22 59 35.359	292 14 24.21	− 20.55	16.19	+14 38 47.47	26.01
163	23 13 14.729	+ .016	.901	23 13 13.844	244 31 36.40	−136.76	16.19	−33 5 56.55	. . .
κ Piscium	21 37.895	− .206	.905	23 21 36.784	278 17 6.13	− 36.56	16.19	+ 0 41 13.38	25.48
164	27 26.086	+ .063	.908	23 27 25.241	239 14 49.81	−189.39	16.19	−38 23 35.77	. . .
γ Cephei	35 9.77	−1.68	.912	23 35 7.18	354 37 42.12	+ 40.85	16.19	+77 3 6.78	24.66
ω Piscium	53 59.974	− .239	.921	23 53 58.814	283 53 5.18	− 29.65	16.19	+ 6 17 19.34	25.69
4 H. Draco. S. P.	0 7 15.36	+1.43	−0.928	12 7 15.86	19 21 50.27	+102.55	16.19	+78 11 43.37	24.40

c +s.013 c' −s.004 ΔT −0s.871 Nadir 134° 55′ 41″.52 t 60.0

b − .361 at 22h 14m Equator 277 35 16.19 B 25.94

a + .147 ρ −s.030 T 60

OCTOBER 1, 1895. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
ω Piscium . . .	23 54 2.129	− .497	− 2.731	23 53 58.901	283 53 6.79	− 29.38	17.45	+ 6 17 19.96	25.41
γ Pegasi	0 7 56.677	− .506	.733	0 7 53.438	292 12 2.98	− 20.39	17.45	+14 36 25.14	24.85
57 l. c.	14 2.66	+1.51	.735	12 14 1.44	9 17 33.78	+ 67.68	17.45	+88 16 35.99	. . .
κ Draconis S. P.	29 3.36	− .32	.738	12 29 0.30	27 11 2.53	+149.89	17.45	+70 21 45.03	25.16
21 Cassiopeiae .	38 52.13	− .70	.740	0 38 48.69	351 59 51.05	+ 36.61	17.45	+74 25 10.21	25.71
61 l. c.	48 17.71	+ .07	.742	12 48 15.04	13 35 13.45	+ 79.40	17.45	+83 58 44.60	. . .
129 . .	53 40.324	− .454	.743	0 53 37.127	247 42 8.10	−114.79	17.45	− 29 55 4.14	. . .
ξ Piscium . . .	1 48 14.195	− .493	.754	1 48 10.948	280 16 26.72	− 33.48	17.45	+ 2 40 35.79	24.99
50 Cassiopeiae .	54 37.90	− .67	.755	1 54 34.48	349 29 46.77	+ 33.38	17.45	+71 55 2.70	25.21
4 Urs. Min. S. P.	2 9 15.01	− .21	.758	14 9 12.04	19 31 19.57	+101.54	17.45	+78 2 16.34	24.55
ξ 2 Ceti	22 41.572	− .499	.760	2 22 38.313	285 35 31.69	− 27.22	17.45	+ 7 59 47.02	25.56
69 l. c.	27 44.88	− .24	.762	14 27 41.88	21 23 49.73	+110.55	17.45	+76 9 37.17	. . .
δ Ceti	34 12.930	− .490	.763	2 34 9.677	277 28 53.01	− 37.07	17.45	− 0 7 1.51	24.58
132 . .	44 48.693	− .450	.765	2 44 45.478	244 47 11.54	−132.84	17.45	−32 50 18.75	. . .
η Eridani . . .	51 24.658	− .481	.766	2 51 21.411	268 17 38.01	− 51.19	17.45	− 9 18 30.63	25.54
133 . .	57 52.629	− .462	.768	2 57 49.399	253 35 5.23	− 88.23	17.45	−24 1 40.45	. . .
73 l. c.	3 10 33.55	+ .97	.770	15 10 31.75	9 56 3.19	+ 68.97	17.45	+87 38 5.29	. . .
ο Tauri	19 16.658	− .500	.772	3 19 13.386	286 15 40.77	− 26.45	17.45	+ 8 39 56.87	25.28
ε Eridani . . .	28 5.672	− .479	.774	3 28 2.419	267 47 47.33	− 52.07	17.45	− 9 48 22.19	24.46
5 H. Camelop. .	39 26.98	− .66	.776	3 39 23.54	348 35 21.67	+ 32.22	17.45	+71 0 36.44	25.64
ζ Urs. Min. S. P.	47 47.04	− .21	− 2.778	15 47 44.05	19 26 35.06	+101.03	17.45	+78 7 1.36	25.70

c +ˢ.019 *c′* +ˢ.002 ΔT −2ˢ.757 Nadir 134° 55′ 42″.53 *t* 65.2
b − .429 at 2ʰ 3ᵐ Equator 277 35 17 .45 B 25.83
a − .249 ρ −.012 T 65

OCTOBER 7, 1895. CIR. E, WT. 5, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
ω Piscium . . .	23 54 4.236	− .407	− 4.935	23 53 58.894	283 53 6.14	− 29.40	16.48	+ 6 17 20.26	26.05
γ Pegasi	0 7 58.820	− .438	.940	0 7 53.442	292 12 1.96	− 20.46	16.48	+14 36 25.02	26.21
57 l. c.	13 59.44	+6.84	.943	12 14 1.34	9 17 34.62	+ 68.00	16.48	+88 16 33.86	. . .
κ Draconis S. P.	29 5.02	+ .23	.949	12 29 0.30	27 11 2.90	+150.89	16.48	+70 21 42.69	25.74
21 Cassiopeiae .	38 54.93	−1.16	.952	0 38 48.82	351 59 52.38	+ 36.86	16.48	+74 25 12.76	25.97
61 l. c.	48 18.23	+1.68	.956	12 48 14.95	13 35 14.33	+ 79.88	16.48	+83 58 42.27	. . .
129 . .	53 42.327	− .263	.959	0 53 37.105	247 42 6.67	−115.43	16.48	− 29 55 5.24	. . .
ξ Piscium . . .	1 48 16.402	− .394	.980	1 48 11.028	280 16 25.89	− 33.65	16.48	+ 2 40 35.76	25.72
50 Cassiopeiae .	54 40.67	−1.04	.983	1 54 34.65	349 29 47.77	+ 33.55	16.48	+71 55 4.84	25.67
4 Urs. Min. S. P.	2 9 16.13	+ .64	.989	14 9 11.78	19 31 20.13	+102.02	16.48	+78 2 14.33	25.32
ξ 2 Ceti	22 43.815	− .413	.994	2 22 38.408	285 35 31.28	− 27.37	16.48	+ 7 59 47.43	25.96
69 l. c.	27 46.16	+ .50	.996	14 27 41.66	21 23 50.08	+111.20	16.48	+76 9 35.20	. . .
δ Ceti	34 15.187	− .383	.999	2 34 9.805	277 28 52.15	− 37.30	16.48	− 0 7 1.63	25.20
132 . .	44 50.836	− .249	− 5.003	2 44 45.584	244 47 10.22	−133.76	16.48	−32 50 20.02	. . .
η Eridani . . .	51 26.886	− .349	.006	2 51 21.531	268 17 36.82	− 51.55	16.48	− 9 18 31.21	26.36
133 . .	57 54.729	− .291	.008	2 57 49.430	253 35 3.74	− 88.88	16.48	−24 1 41.62	. . .
73 l. c.	3 10 30.25	+4.89	.013	15 10 30.13	9 56 3.56	+ 69.53	16.48	+87 38 3.39	. . .
ο Tauri	19 18.886	− .416	.017	3 19 13.453	286 15 40.36	− 26.67	16.48	+ 8 39 57.21	25.67
ε Eridani . . .	28 7.915	− .348	.020	3 28 2.547	267 47 46.43	− 52.53	16.48	− 9 48 22.58	25.02
5 H. Camelop.	39 29.82	−1.01	.024	3 39 23.79	348 35 22.31	+ 32.51	16.48	+71 0 38.34	25.73
ζ Urs. Min. S. P.	47 47.77	+ .65	− 5.028	15 47 43.39	19 26 35.97	+101.97	16.48	+78 6 58.54	25.15

c +ˢ.010 *c′* −ˢ.007 ΔT −4ˢ.986 Nadir 134° 55′ 42″.25 *t* 63.6
b − .427 at 2ʰ 3ᵐ Equator 277 35 16 .48 B 25.87
a − .061 ρ −.024 T 64

OCTOBER 9, 1895. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ω Piscium	23 54 5.136	− .438	−5.777	23 53 58.921	283 53 6.79	− 29.38	16.90	+ 6 17 20.51	25.70
γ Pegasi	0 7 59.727	− .461	.780	0 7 53.486	292 12 3.15	− 20.45	16.90	+14 36 25.80	25.44
57 l. c.	14 0.04	+4.95	.781	12 13 59.21	9 17 36.43	+ 67.94	16.90	+88 16 32.53	. . .
κ Draconis S. P.	29 6.01	+ .04	.785	12 29 0.27	27 11 3.70	+150.85	16.90	+70 21 42.35	26.00
21 Cassiopeiae	38 55.70	−1.00	.788	0 38 48.91	351 59 53.69	+ 36.86	16.90	+74 25 13.65	25.63
61 l. c.	48 19.47	+1.12	.790	12 48 14.80	13 35 15.17	+ 79.92	16.90	+83 58 41.81	. . .
129	53 43.189	− .333	.791	0 53 37.065	247 42 6.35	−115.53	16.90	−29 55 6.08	. . .
ξ Piscium	1 48 17.259	− .429	.805	1 48 11.025	280 16 26.84	− 33.75	16.90	+ 2 40 36.19	25.10
50 Cassiopeiae	54 41.44	− .91	.807	1 54 34.72	349 29 48.75	+ 33.64	16.90	+71 55 5.49	25.49
4 Urs. Min. S. P.	2 9 17.34	+ .34	.810	14 9 11.87	19 31 20.46	+102.29	16.90	+78 2 14.15	25.55
ξ 2 Ceti	22 44.694	− .442	.814	2 22 38.438	285 35 31.55	− 27.44	16.90	+ 7 59 47.21	26.03
69 l. c.	27 47.19	+ .25	.815	14 27 41.63	21 23 50.35	+111.48	16.90	+76 9 35.07	. . .
δ Ceti	34 16.052	− .421	.817	2 34 9.814	277 28 52.46	− 37.39	16.90	− 0 7 1.83	25.15
132	44 51.850	− .322	.819	2 44 45.709	244 47 9.37	−134.08	16.90	−32 50 21.61	. . .
η Eridani*	51 28.101	− .395	.821	2 51 21.885	268 17 37.92	− 51.67	16.90	− 9 18 30.65	25.42
133	57 55.758	− .353	.822	2 57 49.583	— — ——			(−24 1 ——)	. . .
73 l. c.	3 10 31.17	+3.50	.826	15 10 28.84	9 56 4.10	+ 69.68	16.90	+87 38 3.12	. . .
o Tauri	19 19.794	− .445	.828	3 19 13.521	286 15 40.39	− 26.72	16.90	+ 8 39 56.77	25.91
ε Eridani	28 8.822	− .394	.830	3 28 2.598	267 47 46.37	− 52.62	16.90	− 9 48 23.15	25.21
5 H. Camelop.	39 30.68	− .88	.833	3 39 23.97	348 35 23.06	+ 32.56	16.90	+71 0 38.72	25.63
ζ Urs. Min. S. P.	47 48.75	+ .35	−5.835	15 47 43.27	19 26 36.30	+102.11	16.90	+78 6 58.49	25.19

*Illumination failed: omitted from ΔT

c +s.010 c' −s.007 ΔT −5s.807 Nadir 134° 55′ 42″.40 t 62.8
b − .423 at 1h 56m Equator 277 35 16 .90 B 25.88
a − .128 ρ −.015 T 63

OCTOBER 24, 1895. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ω Piscium	23 54 9.836	− .257	−10.667	23 53 58.912	283 53 5.78	− 29.79	14.64	+ 6 17 21.35	25.27
γ Pegasi	0 7 4.470	− .310	.672	0 7 53.488	292 12 2.11	− 20.74	14.64	+14 36 26.73	25.67
57 l. c.	14 5.68	+11.63	.674	12 14 6.64	9 17 38.21	+ 68.93	14.64	+88 16 27.50	. . .
κ Draconis S. P.	29 10.49	+ .79	.681	12 29 0.60	27 11 4.35	+153.10	14.64	+70 21 37.19	26.67
21 Cassiopeiae	39 0.90	− 1.50	.684	0 38 48.72	351 59 55.58	+ 37.41	14.64	+74 25 18.35	26.39
61 l. c.	48 22.88	+ 3.20	.688	12 48 15.39	13 35 17.81	+ 81.14	14.64	+83 58 35.69	. . .
129	53 47.839	− .028	.691	0 53 37.120	247 42 3.62	−117.32	14.64	−29 55 8.34	. . .
ξ Piscium	1 48 22.145	− .251	.712	1 48 11.182	280 16 24.95	− 34.35	14.64	+ 2 40 35.96	25.28
50 Cassiopeiae	54 47.24	− 1.34	.714	1 54 35.19	349 29 50.73	+ 34.24	14.64	+71 55 10.33	25.86
4 Urs. Min. S. P.	2 9 20.56	+ 1.51	.721	14 9 11.35	19 31 22.64	+104.11	14.64	+78 2 7.89	24.97
ξ 2 Ceti	22 49.644	− .289	.726	2 22 38.629	285 35 30.55	− 27.92	14.64	+ 7 59 47.99	25.59
69 l. c.	27 50.68	+ 1.28	.728	14 27 41.23	21 23 51.97	+113.45	14.64	+76 9 29.22	. . .
δ Ceti	34 20.995	− .240	.732	2 34 10.023	277 28 50.48	− 38.05	14.64	− 0 7 2.21	25.12
132	44 56.632	− .010	.735	2 44 45.887	244 47 7.20	−136.46	14.64	−32 50 23.90	. . .
η Eridani	51 32.751	− .183	.737	2 51 21.831	268 17 34.64	− 52.58	14.64	− 9 18 32.58	26.03
133	58 0.587	− .083	.740	2 57 49.764	253 35 0.93	− 90.65	14.64	−24 1 44.36	. . .
73 l. c.	3 10 26.13	+ 8.83	.745	15 10 24.22	9 56 5.98	+ 70.89	14.64	+87 37 57.77	. . .
o Tauri	19 24.872	− .302	.749	3 19 13.821	286 15 38.99	− 27.19	14.64	+ 8 39 57.16	25.63
ε Eridani	28 13.851	− .182	.752	3 28 2.917	267 47 43.87	− 53.52	14.64	− 9 48 24.29	25.05
5 H. Camelop.	39 36.94	− 1.33	.757	3 39 24.85	348 35 24.46	+ 33.10	14.64	+71 0 42.92	25.59
ζ Urs. Min. S. P.	47 51.50	+ 1.53	−10.760	15 47 42.27	19 26 37.03	+103.80	14.64	+78 6 53.81	25.08

c +s.006 c' −s.011 ΔT −10s.718 Nadir 134° 55′ 40″.10 t 56.6
b − .393 at 1h.8 Rate −s.01 at 2h 3m Equator 277 35 14 .64 B 25.97
a + .147 ρ −.024 T 57

NOVEMBER 7, 1895. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
η Eridani . . .	2 51 40.965	− .145	− 18.796	2 51 22.024	268 17 35.19	− 53.41	15.69	− 9 18 33.91	25.91
133 . .	58 8.751	− .071	.799	2 57 49.881	253 35 1.39	− 92.11	15.69	− 24 1 46.41	. . .
ε Eridani . . .	3 28 21.936	− .143	.814	3 28 2.979	267 47 44.63	− 54.42	15.69	− 9 48 25.48	24.55
5 H. Camelop. .	39 45.30	− .99	.820	3 39 25.49	348 35 28.98	+ 33.68	15.69	+ 71 0 46.97	25.82
ζ Urs. Min. S. P.	47 59.25	+ 1.12	.824	15 47 41.55	19 26 40.44	+ 105.67	15.69	+ 78 6 49.58	25.83
ν Tauri	57 57.516	− .217	.829	3 57 38.470	283 18 1.14	− 31.17	15.69	+ 5 42 14.28	25.11
Gr. 750	4 4 30.12	− 3.52	.832	4 4 7.77	2 51 12.13	+ 56.02	15.69	+ 85 16 52.46	25.55
202 . .	14 17.906	− .009	.837	4 13 59.060	243 34 49.06	− 148.61	15.69	− 34 2 55.24	. . .
135 . .	20 28.169	− .008	.840	4 20 9.321	243 22 29.60	− 150.39	15.69	− 34 15 16.48	. . .
ν Eridani . . .	31 27.387	− .173	.846	4 31 8.368	274 2 17.91	− 43.86	15.69	− 3 33 41.64	25.92
π 5 Orionis . . .	49 10.073	− .200	.855	4 48 51.018	279 52 16.57	− 35.55	15.69	+ 2 16 25.33	25.69
ε Urs. Min. S. P.	56 47.25	+ 1.83	.858	16 56 30.22	15 21 15.55	+ 89.02	15.69	+ 82 12 31.12	25.63
β Eridani . . .	5 3 4.280	− .165	.862	5 2 45.253	272 23 0.11	− 46.48	15.69	− 5 13 2.06	26.51
203 . .	8 35.676	− .110	.864	5 8 16.702	261 16 56.15	− 68.73	15.69	− 16 19 28.27	. . .
137 . .	14 4.226	− .003	.867	5 13 45.356	242 38 20.43	− 157.00	15.69	− 34 59 32.26	. . .
γ Orionis . . .	19 53.244	− .218	.870	5 19 34.156	283 51 17.11	− 30.34	15.69	+ 6 15 30.88	26.14
Gr. 966	26 12.55	− 1.21	.873	5 25 52.47	352 33 3.68	+ 39.04	15.69	+ 74 58 27.03	24.81
204 . .	47 37.567	+ .003	.884	5 47 18.686	241 49 52.66	− 164.62	15.69	− 35 48 7.65	. . .
138 . .	54 10.983	− .002	.887	5 53 52.094	242 20 33.18	− 159.54	15.69	− 35 17 22.05	. . .
δ Urs. Min. S. P.	6 5 49.81	+ 4.47	.893	18 5 35.39	10 57 9.25	+ 74.87	15.69	+ 86 36 51.57	26.38
166 . .	16 39.053	− .035	.898	6 16 20.120	247 36 33.03	− 120.14	15.69	− 30 0 42.80	. . .
23 H. Camelop. .	28 54.07	− 1.70	.904	6 28 33.47	357 14 59.17	+ 45.94	15.69	+ 79 40 29.42	25.10
S. Monocerotis .	35 34.848	− .237	.908	6 35 15.703	287 35 23.80	− 26.09	15.69	+ 9 59 42.02	25.15
18 Monocerotis .	42 46.037	− .201	.911	6 42 26.925	280 7 37.65	− 35.05	15.69	+ 2 31 46.91	24.52
96 l. c.	49 58.39	+ .87	.914	18 49 40.35	22 14 27.09	+ 119.84	15.69	+ 75 18 48.76	. . .
206 . .	57 54.212	− .049	.919	6 57 35.244	249 50 14.60	− 107.93	15.69	− 27 46 49.02	. . .
λ Geminorum .	7 12 26.733	− .270	− 18.926	7 12 7.537	294 19 23.40	− 18.94	15.69	+ 16 43 48.77	26.09

c +s.010 c' −s.007 ΔT −18s.862 Nadir 134° 55′ 41″.25 t 46.0
b − .308 at 5h 3m Equator 277 35 15 .69 B 25.89
a + .103 ρ − .030 T 45

NOVEMBER 13, 1895. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ζ Urs. Min. S. P.	3 48 3.92	+ 1.23	− 23.817	15 47 41.33	19 26 43.42	+ 106.12	15.67	+ 78 6 46.13	25.06
ν Tauri	58 2.652	− .248	.822	3 57 38.582	283 18 1.52	− 31.30	15.67	+ 5 42 14.55	24.93
Gr. 750	4 4 35.96	− 3.94	.825	4 4 8.19	2 51 14.42	+ 56.26	15.67	+ 85 16 55.01	25.45
202 . .	14 23.042	− .006	.830	4 13 59.206	243 34 50.06	− 149.25	15.67	− 34 2 54.86	. . .
135 . .	20 33.305	− .004	.833	4 20 9.468	243 22 29.79	− 151.06	15.67	− 34 15 16.94	. . .
ν Eridani . . .	31 32.502	− .198	.839	4 31 8.465	274 2 17.72	− 44.07	15.67	− 3 33 42.02	26.08
π 5 Orionis . . .	49 15.180	− .230	.848	4 48 51.102	279 52 16.12	− 35.75	15.67	+ 2 16 24.70	26.19
ε Urs. Min. S. P.	56 51.49	+ 2.01	.851	16 56 29.65	15 21 17.81	+ 89.53	15.67	+ 82 12 28.33	25.18
β Eridani . . .	5 3 9.380	− .189	.855	5 2 45.336	272 23 0.08	− 46.74	15.67	− 5 13 2.33	26.44
203 . .	8 40.719	− .126	.857	5 8 16.736	261 16 56.24	− 69.10	15.67	− 16 19 28.53	. . .
137 . .	14 9.383	+ .002	.860	5 13 45.525	242 38 23.22	− 157.79	15.67	− 34 59 30.24	. . .
γ Orionis . . .	19 58.344	− .251	.863	5 19 34.230	283 51 17.67	− 30.69	15.67	+ 6 15 31.31	25.65
Gr. 966	26 18.12	− 1.37	.866	5 25 52.88	352 33 5.61	+ 39.23	15.67	+ 74 58 29.17	24.52
204 . .	47 42.817	+ .008	.877	5 47 18.948	241 49 53.70	− 165.52	15.67	− 35 48 7.49	. . .
138 . .	54 16.154	+ .004	.880	5 53 52.278	242 20 36.25	− 160.50	15.67	− 35 17 19.92	. . .
δ Urs. Min. S. P.	6 5 51.95	+ 4.96	.886	18 5 33.02	10 57 11.27	+ 75.40	15.67	+ 86 36 49.00	25.67
166 . .	16 44.253	− .037	.891	6 16 20.325	247 36 34.51	− 121.14	15.67	− 30 0 42.30	. . .
23 H. Camelop. .	29 0.16	− 1.90	.897	6 28 34.36	357 15 0.97	+ 46.39	15.67	+ 79 40 31.69	24.37
S. Monocerotis .	35 40.044	− .273	.901	6 35 15.870	287 35 22.99	− 26.36	15.67	+ 9 59 40.96	26.15
18 Monocerotis .	42 51.230	− .231	.904	6 42 27.095	280 7 36.74	− 35.43	15.67	+ 2 31 45.64	25.56
96 l. c.	50 2.87	+ .95	.908	18 49 39.91	22 14 27.27	+ 121.22	15.67	+ 75 18 47.18	. . .
206 . .	57 59.298	− .052	.912	6 57 35.334	249 50 15.61	− 109.28	15.67	− 27 46 49.34	. . .
λ Geminorum .	7 12 31.948	− .312	− 23.919	7 12 7.717	294 19 22.88	− 19.18	15.67	+ 16 43 48.03	26.77

c +s.022 c' +s.005 ΔT −23s.869 Nadir 134° 55′ 41″.64 t 47.7
b − .366 at 5h 32m Equator 277 35 15 .67 B 26.17
a + .113 ρ − .030 T 49

NOVEMBER 19, 1895. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ζ Urs. Min. S. P.	3 48 9.02	− .02	−27.869	15 47 41.13	19 26 50.74	+101.96	17.26	+78 6 44.56	25.39
ν Tauri	58 7.095	− .519	.873	3 57 38.703	283 18 0.49	− 30.11	17.26	+ 5 42 13.12	25.65
Gr. 750	4 4 38.82	−1.69	.876	4 3 9.25	2 51 19.64	+ 54.11	17.26	+85 16 56.49	25.68
202 . .	14 27.585	− .463	.880	4 13 59.242	243 34 43.17	−143.59	17.26	−34 2 57.68	. . .
135 . .	20 37.905	− .463	.882	4 20 9.560	243 22 23.69	−145.35	17.26	−34 15 18.92	. . .
ν Eridani . . .	31 37.002	− .506	.887	4 31 8.609	274 2 16.72	− 42.41	17.26	− 3 33 42.95	26.00
π 5 Orionis . . .	49 19.645	− .513	.894	4 48 51.238	279 52 15.95	− 34.36	17.26	+ 2 16 24.33	25.67
ε Urs. Min. S. P.	56 56.75	+ .24	.897	16 56 29.09	15 21 24.27	+ 86.00	17.26	+82 12 26.99	25.49
β Eridani . . .	5 3 13.873	− .504	.899	5 2 45.470	272 22 58.76	− 44.90	17.26	− 5 13 3.40	26.26
203 . .	8 45.341	− .489	.901	5 8 16.951	261 16 53.47	− 66.37	17.26	−16 19 30.16	. . .
137 . .	14 13.947	− .462	.904	5 13 45.581	242 38 13.46	−151.50	17.26	−34 59 35.30	. . .
γ Orionis . . .	20 2.829	− .519	.906	5 19 34.404	283 51 17.41	− 29.47	17.26	+ 6 15 30.68	25.39
Gr. 966	26 22.01	− .86	.908	5 25 53.24	352 33 9.78	+ 37.67	17.26	+74 58 30.19	24.61
204 . .	47 47.439	− .460	.917	5 47 19.062	241 49 45.46	−158.80	17.26	−35 48 10.60	. . .
138 . .	54 20.768	− .462	.920	5 53 52.386	242 20 27.94	−153.93	17.26	−35 17 23.25	. . .
δ Urs. Min. S. P.	6 5 57.99	+1.19	.924	18 5 31.26	10 57 16.95	+ 72.31	17.26	+86 36 48.00	25.77
166 . .	16 48.874	− .470	.929	6 16 20.475	247 36 28.20	−116.11	17.26	−30 0 45.17	. . .
23 H. Camelop. .	29 3.96	−1.04	.934	6 28 34.99	357 15 4.84	+ 44.46	17.26	+79 40 32.04	24.75
S. Monocerotis .	35 44.458	− .524	.936	6 35 15.998	287 35 23.14	− 25.26	17.26	+ 9 59 40.62	25.47
18 Monocerotis .	42 55.673	− .514	.939	6 42 27.220	280 7 35.96	− 33.96	17.26	+ 2 31 44.74	25.23
96 l. c.	50 7.53	− .11	.942	18 49 39.48	22 14 34.49	+116.17	17.26	+75 18 46.60	. . .
206 . .	58 3.991	− .474	.945	6 57 35.572	249 50 10.55	−104.73	17.26	−27 46 51.44	. . .
λ Geminorum .	7 12 36.376	− .534	−27.951	7 12 7.891	294 19 23.23	− 18.38	17.26	+16 43 47.59	26.23

c −ˢ.006 c' −ˢ.023 ΔT −27ˢ.911 Nadir 134° 55′ 43″.00 t 64.2
b − .434 at 5ʰ 32ᵐ Equator 277 35 17 .26 B 25.98
a − .235 ρ − .024 T 66

DECEMBER 9, 1895. CIR. E, WT. 5, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
ν Piscium . . .	1 36 46.873	− .288	−44.603	1 36 ——	282 33 35.29	− 31.84	15.40	+ 4 57 ——	25.59
ο Ceti	2 14 51.495	− .240	.626	2 14 ——	274 9 5.18	− 43.35	15.40	− 3 26 ——	24.86
ζ Urs. Min. S. P.	3 48 24.73	+1.25	.682	15 47 41.30	19 26 53.33	+104.94	15.40	+78 6 37.13	25.53
ν Tauri	58 23.802	− .292	.688	3 57 38.822	283 17 57.99	− 30.95	15.40	+ 5 42 11.64	25.62
Gr. 750	4 4 58.36	−4.15	.692	4 4 9.52	2 51 23.28	+ 55.62	15.40	+85 17 3.50	25.55
202 . .	14 44.078	− .033	.698	4 13 59.347	243 34 39.66	−147.53	15.40	−34 3 3.27	. . .
135 . .	20 54.448	− .030	.701	4 20 9.717	243 22 19.42	−149.27	15.40	−34 15 25.25	. . .
ν Eridani . . .	31 53.852	− .238	.708	4 31 8.906	274 2 13.53	− 43.53	15.40	− 3 33 45.40	25.56
π 5 Orionis . . .	49 36.552	− .273	.719	4 48 51.560	279 52 12.65	− 35.28	15.40	+ 2 16 21.97	25.80
ε Urs. Min. S. P.	57 10.59	+2.06	.723	16 56 27.93	15 21 26.82	+ 88.33	15.40	+82 12 20.25	25.86
β Eridani . . .	5 3 30.673	− .229	.727	5 2 45.717	272 22 54.79	− 46.12	15.40	− 5 13 6.73	26.44
203 . .	9 2.005	− .161	.730	5 8 17.114	261 16 49.18	− 68.22	15.40	−16 19 34.44	. . .
137 . .	14 30.590	− .024	.733	5 13 45.833	242 38 9.90	−155.80	15.40	−34 59 41.30	. . .
γ Orionis . . .	20 19.665	− .295	.737	5 19 34.633	283 51 14.54	− 30.31	15.40	+ 6 15 28.83	25.37
Gr. 966	26 40.37	−1.45	.741	5 25 54.18	352 33 12.62	+ 38.75	15.40	+74 58 35.97	24.43
204 . .	48 4.167	− .018	.754	5 47 19.395	241 49 40.52	−163.58	15.40	−35 48 18.46	. . .
138 . .	54 37.440	− .023	.758	5 53 52.659	242 20 23.14	−158.59	15.40	−35 17 30.85	. . .
δ Urs. Min. S. P.	6 6 5.73	+5.14	.764	18 5 26.11	10 57 19.06	+ 74.48	15.40	+86 36 41.86	25.54
166 . .	17 5.603	− .065	.771	6 16 20.767	247 36 23.80	−119.60	15.40	−30 0 51.20	. . .
23 H. Camelop. .	29 23.69	−2.02	.779	6 28 36.89	357 15 6.31	+ 45.76	15.40	+79 40 36.67	24.81
S. Monocerotis .	36 1.644	− .317	.783	6 35 16.544	287 35 19.79	− 26.00	15.40	+ 9 59 38.39	25.57
18 Monocerotis .	43 12.766	− .274	.787	6 42 27.705	280 7 31.63	− 34.94	15.40	+ 2 31 41.29	25.73
96 l. c.	50 22.10	+ .94	.791	18 49 38.25	22 14 35.59	+119.51	15.40	+75 18 40.30	. . .
206 . .	58 20.834	− .082	.796	6 57 35.956	249 50 5.49	−107.71	15.40	−27 46 57.62	. . .
λ Geminorum .	7 12 53.648	− .358	−44.805	7 12 8.485	294 19 20.39	− 18.90	15.40	+16 43 46.09	25.94

ο Ceti, 7½ mag.

c +ˢ.029 c' +ˢ.012 ΔT −44ˢ.717 10 stars Nadir 134° 55′ 41″.05 t 52.4
b − .417 at 4ʰ 47ᵐ Equator 277 35 15 .40 B 26.08
a + .100 ρ −.036 T 53

JANUARY 2, 1896. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
δ Urs. Min. S. P.	6 5 34.81	+3.26	−13.714	18 5 24.36	10 57 26.97	+ 75.56	16.34	+86 36 33.81	25.84
S. Monocerotis	35 31.186	− .519	.738	6 35 16.929	287 35 18.48	− 26.31	16.34	+ 9 59 35.83	26.16
18 Monocerotis	42 42.366	− .492	.744	6 42 28.130	280 7 29.80	− 35.33	16.34	+ 2 31 38.13	25.80
51 H. Cephei	52 38.71	−5.00	.752	6 52 19.96	4 47 1.29	+ 60.13	16.34	+87 12 45.08	26.07
207	58 56.830	− .395	.757	6 58 42.678	253 55 59.42	− 91.23	16.34	−23 40 48.15	. . .
141	7 13 44.140	− .334	.769	7 13 30.037	240 43 39.24	−176.72	16.34	−36 54 33.82	. . .
208	20 14.791	− .372	.774	7 20 0.645	248 31 16.80	−115.35	16.34	−29 5 54.89	. . .
25 Monocerotis	32 22.387	− .469	.784	7 32 8.134	273 43 21.20	− 44.30	16.34	− 3 52 39.44	25.87
167	8 0 11.593	− .319	.806	7 59 57.468	237 56 21.47	−214.60	16.34	−39 42 30.47	. . .
Br. 1147	6 51.28	−1.36	.811	8 6 36.11	353 38 59.69	+ 40.58	16.34	+76 4 23.93	26.31
Br. 1197	20 43.787	− .470	.823	8 20 29.494	274 2 1.55	− 43.85	16.34	− 3 33 58.64	26.32
105 l. c.	30 35.89	+ .23	.830	20 30 22.29	25 22 6.95	+141.42	16.34	+72 10 47.97	. . .
ε Hydrae	41 32.215	− .507	.839	8 41 17.869	284 23 48.36	− 29.92	16.34	+ 6 48 2.10	26.41
76 Draconis S. P.	50 7.66	+1.13	.846	20 49 54.94	15 24 55.56	+ 89.33	16.34	+82 8 51.45	25.71
ϑ Hydrae	9 9 13.187	− .488	.861	9 8 58.838	280 21 2.53	− 34.99	16.34	+ 2 45 11.20	26.03
111 l. c.	20 3.99	+3.26	.870	21 19 53.38	10 57 28.59	+115.24	16.34	+86 36 32.51	. . .
143	26 51.720	− .317	.875	9 26 37.528	237 38 22.92	−220.19	16.34	−40 0 33.61	. . .
o Leonis	35 52.008	− .521	.883	9 35 37.604	287 57 35.53	− 25.73	16.34	+10 21 53.46	26.12
6 Sextantis	46 15.409	− .470	.891	9 46 1.048	273 50 39.59	− 44.01	16.34	− 3 45 20.76	26.12
114 l. c.	51 42.92	+ .27	.896	21 51 29.29	24 20 13.23	+133.34	16.34	+73 12 49.77	. . .
24 Cephei S. P.	10 7 58.21	+ .20	.908	22 7 44.50	25 42 55.89	+143.55	16.34	+71 49 56.90	25.66
145	15 3.87	−2.89	.914	10 14 47.07	2 20 54.98	+ 54.90	16.34	+84 46 33.54	. . .
9 H. Draconis	26 36.76	−1.37	−13.923	10 26 21.47	353 49 14.75	+ 40.74	16.34	+76 14 39.15	25.78

c ˢ.000	c' −ˢ.017	ΔT −13ˢ.820	Nadir 134° 55′ 42″.44	t 46.4
b − .494		at 8ʰ 18ᵐ	Equator 277 35 16 .34	B 25.96
a − .120		ρ −.048		T 45

JANUARY 6, 1896. CIR. E, WT. 5, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
δ Urs. Min. S. P.	6 5 39.05	+3.60	−18.091	18 5 24.56	10 57 29.88	+ 74.45	16.54	+86 36 32.21	25.81
S. Monocerotis	35 35.565	− .512	.114	6 35 16.939	287 35 17.38	− 26.01	16.54	+ 9 59 34.83	27.00
18 Monocerotis	42 46.730	− .480	.119	6 42 28.131	280 7 29.46	− 34.96	16.54	+ 2 31 37.96	25.67
51 H. Cephei	52 43.84	−5.41	.126	6 52 20.30	4 47 4.22	+ 59.60	16.54	+87 12 47.28	25.39
207	59 1.144	− .369	.130	6 58 42.645	253 55 58.51	− 90.48	16.54	−23 40 48.51	. . .
141	7 13 48.468	− .296	.141	7 13 30.031	240 43 37.59	−175.54	16.54	−36 54 34.49	. . .
208	20 19.191	− .342	.146	7 20 0.703	248 31 14.24	−114.68	16.54	−29 5 56.98	. . .
25 Monocerotis	32 26.866	− .454	.155	7 32 8.257	273 43 20.33	− 44.09	16.54	− 3 52 40.30	26.26
167	8 0 15.907	− .277	.175	7 59 57.455	237 56 19.53	−213.68	16.54	−39 42 30.69	. . .
Br. 1147	6 55.87	−1.43	.180	8 6 36.26	353 39 1.73	+ 40.41	16.54	+76 4 25.60	25.86
Br. 1197	20 48.244	− .455	.191	8 20 29.598	274 2 0.76	− 43.65	16.54	− 3 33 59.43	26.57
105 l. c.	30 40.34	+ .29	.198	20 30 22.43	25 22 8.92	+140.75	16.54	+72 10 46.87	. . .
ε Hydrae	41 36.579	− .497	.206	8 41 17.876	284 23 47.98	− 29.75	16.54	+ 6 48 1.69	26.45
76 Draconis S. P.	50 11.32	+1.29	.212	20 49 54.40	15 24 57.19	+ 88.84	16.54	+82 8 50.51	26.08
ϑ Hydrae	9 9 17.609	− .481	.226	9 8 58.902	280 21 2.29	− 34.78	16.54	+ 2 45 10.97	25.84
111 l. c.	20 8.29	+3.60	.234	21 19 53.66	10 57 30.39	+ 74.75	16.54	+86 36 31.40	. . .
143	26 56.256	− .276	.239	9 26 37.741	237 38 22.17	−218.89	16.54	−40 0 33.26	. . .
o Leonis	35 56.472	− .513	.246	9 35 37.713	287 57 35.34	− 25.67	16.54	+10 21 53.13	26.07
6 Sextantis	46 19.837	− .455	.253	9 46 1.129	273 50 39.18	− 43.97	16.54	− 3 45 21.33	26.11
114 l. c.	51 47.13	+ .33	.258	21 51 29.20	24 20 15.92	+133.26	16.54	+73 12 47.36	. . .
24 Cephei S. P.	10 8 2.24	+ .27	.269	22 7 44.24	25 42 57.97	+143.51	16.54	+71 49 55.06	24.88
145	15 8.79	−3.10	.274	10 14 47.42	2 20 56.00	+ 54.87	16.54	+84 46 34.33	. . .
9 H. Draconis	26 41.39	−1.45	−18.282	10 26 21.66	353 49 15.92	+ 40.70	16.54	+76 14 40.08	25.53

c +ˢ.010	c' −ˢ.007	ΔT −18ˢ.188	Nadir 134° 55′ 42″.79	t 51.8
b − .510		at 8ʰ 18ᵐ	Equator 277 35 16 .54	B 26.05
a − .095		ρ −.044		T 54

FEBRUARY 7, 1896. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
δ Urs. Min. S. P.	6 6 12.93	+5.24	−48.922	18 5 29.25	10 57 36.72	+ 76.06	16.10	+86 36 23.32	26.31
S. Monocerotis	36 6.493	− .559	.940	6 35 16.994	287 35 16.72	− 26.48	16.10	+ 9 59 34.14	25.33
18 Monocerotis	43 17.594	− .516	.944	6 42 28.134	280 7 26.14	− 35.57	16.10	+ 2 31 34.47	25.39
51 H. Cephei	53 14.70	−7.47	.950	6 52 18.28	4 47 12.21	+ 60.55	16.10	+87 12 56.66	25.33
207	59 31.952	− .358	.954	6 58 42.640	253 55 52.21	− 91.88	16.10	−23 40 55.77	. . .
141	7 14 19.297	− .257	.962	7 13 30.078	240 43 30.13	−178.11	16.10	−36 54 44.08	. . .
208	20 49.912	− .321	.966	7 20 0.625	248 31 6.86	−116.32	16.10	−29 6 5.56	. . .
25 Monocerotis	32 57.902	− .479	.974	7 32 8.449	273 43 15.46	− 44.71	16.10	− 3 52 45.35	25.94
167	8 0 46.893	− .231	.990	7 59 57.672	237 56 11.28	−216.86	16.10	−39 42 41.68	. . .
Br. 1147	7 27.94	−1.87	.994	8 6 37.08	353 39 9.32	+ 40.99	16.10	+76 4 34.21	25.57
Br. 1197	21 19.373	− .481	−49.003	8 20 29.889	274 1 55.45	− 44.29	16.10	− 3 34 4.94	26.38
105 l. c.	31 10.61	+ .57	.009	20 30 22.17	25 22 16.07	+142.83	16.10	+72 10 37.20	. . .
ε Hydrae	42 7.893	− .541	.015	8 41 18.337	284 23 44.07	− 30.20	16.10	+ 6 47 57.77	26.45
76 Draconis S. P.	50 40.56	+1.97	.020	20 49 53.51	15 25 5.00	+ 90.18	16.10	+82 8 40.92	26.12
9 Hydrae	9 9 48.944	− .516	.032	9 8 59.396	280 20 57.29	− 35.31	16.10	+ 2 45 5.88	25.91
111 l. c.	20 32.11	+5.24	.038	21 19 48.31	10 57 37.61	+ 75.91	16.10	+86 36 22.58	. . .
143	27 27.463	− .228	.042	9 26 38.193	237 38 12.60	−222.52	16.10	−40 0 46.02	. . .
o Leonis	36 27.943	− .562	.048	9 35 38.333	287 57 31.29	− 26.09	16.10	+10 21 49.10	26.37
6 Sextantis	46 51.209	− .480	.054	9 46 1.675	273 50 32.63	− 44.68	16.10	− 3 45 28.15	26.56
114 l. c.	52 16.70	+ .64	.057	21 51 28.28	24 20 21.19	+135.41	16.10	+73 12 39.50	. . .
24 Cephei S. P.	10 8 31.86	+ .54	.067	22 7 43.33	25 43 2.87	+145.74	16.10	+71 49 47.49	25.55
145	15 46.19	−4.21	.071	10 14 52.91	2 21 2.16	+ 55.71	16.10	+84 46 41.77	. . .
9 H. Draconis	27 14.84	−1.88	−49.078	10 26 23.88	353 49 20.39	+ 41.32	16.10	+76 14 45.61	25.87

c +s.006	c′ −s.011	ΔT −49s.001	Nadir 134° 55′ 42″.14	t 41.2
b − .590		at 8h 18m	Equator 277 35 16 .10	B 25.96
a − .036		ρ −.036		T 41

FEBRUARY 12, 1896. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
δ Urs. Min. S. P.	6 6 17.65	+4.69	−51.356	18 5 30.98	10 57 38.88	+ 74.67	15.81	+86 36 22.26	26.69
S. Monocerotis	36 8.951	− .649	.371	6 35 16.931	287 35 15.77	− 26.12	15.81	+ 9 59 33.84	25.95
18 Monocerotis	43 20.187	− .611	.375	6 42 28.201	280 7 25.07	− 35.11	15.81	+ 2 31 34.15	25.85
51 H. Cephei	53 15.98	−7.01	.380	6 52 17.59	4 47 13.98	+ 59.82	15.81	+87 12 57.99	25.79
207	59 34.552	− .470	.383	6 58 42.699	253 55 49.12	− 90.82	15.81	−23 40 57.49	. . .
141	7 14 21.773	− .380	.390	7 13 29.963	240 43 28.93	−176.15	15.81	−36 54 43.03	. . .
208	20 52.505	− .435	.393	7 20 0.677	248 31 5.38	−115.06	15.81	−29 6 5.49	. . .
25 Monocerotis	33 0.416	− .577	.400	7 32 8.439	273 43 14.20	− 44.23	15.81	− 3 52 45.84	26.94
167	8 0 49.457	− .356	.413	7 59 57.688	237 56 8.35	−214.38	15 81	−39 42 41.84	. . .
Br. 1147	7 30.27	−1.84	.417	8 6 37.01	353 39 10.67	+ 40.52	15.81	+76 4 35.38	26.20
Br. 1197	21 21.923	− .579	.424	8 20 29.920	274 1 54.16	− 43.75	15.81	− 3 34 5.40	26.60
105 l. c.	31 13.21	+ .40	.429	20 30 22.18	25 22 20.14	+140.98	15.81	+72 10 34.69	. . .
ε Hydrae	42 10.465	− .633	.434	8 41 18.398	284 23 43.50	− 29.79	15.81	+ 6 47 57.90	26.35
76 Draconis S. P.	50 42.80	+1.68	.438	20 49 53.04	15 25 8.55	+ 88.92	15.81	+82 8 38.34	25.58
9 Hydrae	9 9 51.523	− .612	.448	9 8 59.463	280 20 56.29	− 34.80	15.81	+ 2 45 5.68	25.98
111 l. c.	20 34.65	+4.69	.453	21 19 47.89	10 57 40.43	+ 74.83	15.81	+86 36 20.55	. . .
143	27 30.006	− .354	.457	9 26 38.195	237 38 9.50	−219.32	15.81	−40 0 45.63	. . .
o Leonis	36 30.486	− .651	.461	9 35 38.374	287 57 30.03	− 25.74	15.81	+10 21 48.48	27.05
6 Sextantis	46 53.759	− .578	.466	9 46 1.715	273 50 30.85	− 44.12	15.81	− 3 45 29.08	27.11
114 l. c.	52 19.23	+ .46	.469	21 51 28.22	24 20 24.24	+133.82	15.81	+73 12 37.75	. . .
24 Cephei S. P.	10 8 34.45	+ .37	.477	22 7 43.34	25 43 6.19	+144.21	15.81	+71 49 45.41	25.40
145	15 49.43	−3.99	.481	10 14 53.96	2 21 4.79	+ 55.12	15.81	+84 46 44.10	. . .
9 H. Draconis	27 17.61	−1.85	−51.487	10 26 24.27	353 49 21.93	+ 40.88	15.81	+76 14 47.00	26.14

c s.000	c′ −s.017	ΔT −51s.422	Nadir 134° 55′ 42″.29	t 47.2
b − .640		at 8h 18m	Equator 277 35 15 .81	B 25.94
a − .117		ρ −.030		T 47

MARCH 10, 1896. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Gr. 1586	9 50 31.50	−1.72	−76.900	9 49 12.88	350 57 7.91	+ 36.63	15.86	+73 22 28.68	26.77
π Leonis	56 2.779	− .446	.903	9 54 45.430	286 8 9.77	− 27.71	15.86	+ 8 32 26.20	26.22
24 Cephei S. P. .	10 8 59.58	+ .84	.910	22 7 43.51	25 43 15.46	+143.65	15.86	+71 49 36.75	24.35
118 l. c.	31 35.74	+1.21	.922	22 30 20.03	21 51 55.46	+118.01	15.86	+75 41 22.39	. . .
1 Leonis	45 7.400	− .471	.930	10 43 49.999	288 41 13.00	− 24.93	15.86	+11 5 32.21	25.70
147 . .	56 1.712	− .264	.936	10 54 44.512	259 51 32.24	− 72.24	15.86	−17 44 55.86	. . .
χ Leonis	11 0 59.001	− .450	.939	10 59 41.612	285 29 25.62	− 28.53	15.86	+ 7 53 41.23	25.89
π Cephei S. P. .	5 44.87	+1.12	.941	23 4 29.05	22 43 40.97	+123.07	15.86	+74 49 31.82	25.28
σ Leonis	17 6.265	− .444	.947	11 15 48.874	284 11 29.85	− 30.05	15.86	+ 6 35 43.94	25.69
122 l. c.	28 26.63	+6.84	.954	23 27 16.52	10 49 53.51	+ 74.50	15.86	+86 44 7.85	. . .
148 . .	40 48.862	− .268	.961	11 39 31.633	259 49 52.55	− 72.28	15.86	−17 46 35.59	. . .
124 l. c.	50 56.61	+1.03	.966	23 49 40.67	23 43 6.47	+129.25	15.86	+73 50 0.14	. . .
o Virginis . . .	12 1 14.565	− .469	.972	11 59 57.124	286 54 5.42	− 26.89	15.86	+ 9 18 22.67	25.43
4 H. Draconis .	8 48.85	−2.40	.976	12 7 29.47	355 45 57.98	+ 43.63	15.86	+78 11 25.75	26.47
η Virginis . . .	15 54.794	− .404	.980	12 14 37.410	277 30 18.44	− 38.64	15.86	− 0 5 36.06	25.60
149 . .	48 59.843	− .064	.998	12 47 42.781	238 1 48.16	−212.65	15.86	−39 37 0.35	. . .
43 H. Cephei S. P.	55 23.91	+5.19	−77.002	0 54 12.10	11 51 45.91	+ 77.38	15.86	+85 42 12.57	25.51
9 Virginis . . .	13 5 53.437	− .374	.007	13 4 36.056	272 36 43.30	− 45.95	15.86	− 4 59 18.51	26.08
211 . .	16 4.255	− .107	.012	13 14 47.136	241 28 2.40	−167.98	15.86	−36 10 1.44	. . .
Gr. 2001	24 53.70	−1.79	.018	13 23 34.89	350 30 11.84	+ 36.12	15.86	+72 55 32.10	25.96
τ Virginis . . .	57 40.730	− .432	−77.036	13 56 23.262	279 38 24.40	− 35.74	15.86	+ 2 2 32.80	25.34

c +ˢ.013	*c′* −ˢ.004	ΔT −1ᵐ 16ˢ.964	Nadir	134° 55′ 41″.56	*t* 48.4
b − .566 at 12ʰ	Rate −ˢ.01	at 11ʰ 48ᵐ	Equator	277 35 15 .86	B 25.98
a + .086		*ρ* −.033			T 49

MARCH 12, 1896. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	*s*	*s*	*h m s*	° ′ ″	″	″	° ′ ″	″
Gr. 1586	9 50 33.77	−1.79	−79.253	9 49 12.73	350 57 9.74	+ 36.09	16.16	+73 22 29.67	26.24
π Leonis	56 5.260	− .536	.258	9 54 45.466	268 8 10.50	− 27.27	16.16	+ 8 32 27.07	25.26
24 Cephei S. P. .	10 9 2.19	+ .71	.269	22 7 43.63	25 43 18.04	+141.06	16.16	+71 49 37.06	25.15
118 l. c.	31 38.25	+1.06	.288	22 30 20.02	21 51 57.56	+115.71	16.16	+75 41 22.89	. . .
1 Leonis	45 9.800	− .555	.298	10 43 49.947	288 41 12.59	− 24.44	16.16	+11 5 31.99	25.84
147 . .	56 4.240	− .350	.308	10 54 44.582	259 51 31.05	− 70.83	16.16	−17 44 55.94	. . .
χ Leonis	11 1 1.451	− .532	.312	10 59 41.607	285 29 25.41	− 27.98	16.16	+ 7 53 41.27	25.73
π Cephei S. P. .	5 47.52	+ .97	.316	23 4 29.17	22 43 43.64	+120.71	16.16	+74 49 31.81	25.81
σ Leonis	17 8.722	− .523	.325	11 15 48.874	284 11 29.16	− 29.49	16.16	+ 6 35 43.51	25.97
122 l. c.	28 29.77	+6.42	.334	23 27 16.86	10 49 55.66	+ 73.12	16.16	+86 44 7.38	. . .
148 . .	40 51.340	− .350	.345	11 39 31.645	259 49 51.03	− 70.96	16.16	−17 46 36.09	. . .
124 l. c.	50 59.18	+ .87	.354	23 49 40.70	23 43 8.74	+126.89	16.16	+73 50 0.53	. . .
o Virginis . . .	12 1 17.043	− .542	.362	11 59 57.139	286 54 5.00	− 26.41	16.16	+ 9 18 22.43	25.57
4 H. Draconis .	8 51.12	−2.37	.368	12 7 29.38	355 45 59.43	+ 42.85	16.16	+78 11 26.12	26.59
η Virginis . . .	15 57.267	− .476	.374	12 14 37.417	277 30 18.26	− 37.94	16.16	− 0 5 35.84	25.15
149 . .	49 2.336	− .149	.402	12 47 42.785	238 1 44.78	−208.91	16.16	−39 37 0.29	. . .
43 H. Cephei S. P.	55 25.93	+4.75	.407	0 54 11.27	11 51 47.19	+ 76.04	16.16	+85 42 12.94	26.36
9 Virginis . . .	13 5 55.916	− .443	.416	13 4 36.057	272 36 42.70	− 45.16	16.16	− 4 59 18.62	25.88
211 . .	16 6.848	− .187	.424	13 14 47.237	241 27 59.64	−165.04	16.16	−36 10 1.56	. . .
Gr. 2001	24 56.10	−1.76	.432	13 23 34.91	350 30 12.73	+ 35.49	16.16	+72 55 32.06	26.38
τ Virginis . . .	14 11 55.573	− .439	−79.471	14 10 35.663	272 5 29.31	− 45.99	16.16	− 5 30 32.84	25.20

c +ˢ.019	*c′* +ˢ.002	ΔT −1ᵐ 19ˢ.352	Nadir	134° 55′ 41″.73	*t* 55.3
b − .621		at 11ʰ 49ᵐ	Equator	277 35 16 .16	B 25.89
a + .024		*ρ* −.050			T 53

APRIL 2, 1896. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
Gr. 1586	9 50 52.96	−1.84	−99.214	9 49 11.91	350 57 13.41	+ 36.58	15.63	+73 22 34.36	26.55
π Leonis	56 24.958	− .474	.218	9 54 45.266	286 8 9.90	− 27.65	15.63	+ 8 32 26.62	25.94
24 Cephei S. P.	10 9 22.88	+ .89	.228	22 7 44.54	25 43 19.26	+143.46	15.63	+71 49 32.91	26.09
118 l. c.	31 59.08	+1.27	.245	22 30 21.11	21 52 1.29	+117.47	15.63	+75 41 16.87	. . .
1 Leonis	45 29.628	− .494	.255	10 43 49.879	288 41 13.26	− 24.80	15.63	+11 5 32.83	25.69
147	56 24.069	− .270	.263	10 54 44.536	259 51 29.46	−111.88	15.63	− 17 44 58.05	. . .
χ Leonis	11 1 21.358	− .468	.267	10 59 41.623	285 29 25.44	− 28.38	15.63	+ 7 53 41.43	25.96
π Cephei S. P.	6 8.05	+1.16	.271	23 4 29.96	22 43 47.37	+122.47	15.63	+74 49 25.79	25.69
σ Leonis	17 28.629	− .459	.279	11 15 48.891	284 11 30.07	− 29.90	15.63	+ 6 35 44.54	25.25
122 l. c.	28 50.91	+7.11	.288	23 27 18.73	10 50 1.13	+ 74.14	15.63	+86 44 0.36	. . .
(1) 148	41 11.376	− .270	.297	11 39 31.809	259 49 49.30	− 71.91	15.63	− 17 46 38.24	. . .
o Virginis	12 1 37.051	− .479	.312	11 59 57.260	286 54 5.71	− 26.74	15.63	+ 9 18 23.34	25.31
4 H. Draconis	9 11.28	−2.47	−99.318	12 7 29.49	355 46 5.07	+ 43.37	15.63	+78 11 32.81	26.35

(1) 8 mag. in clouds.

4 H. Draconis invisible at times in clouds. Ended by clouds.

c +s.022	c′ +s.005	ΔT −1m 39s.266	Nadir	134° 55′ 41″.26	t 46.2
b − .592		at 11h 0m	Equator	277 35 15 .63	B 25.75
a + .094		ρ −.045			T 46

MAY 7, 1896. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
Gr. 1586	9 49 34.47	−1.89	−22.644	9 49 9.94	350 57 16.62	+ 36.74	14.52	+73 22 38.84	26.16
π Leonis	55 8.043	− .529	.650	9 54 44.864	286 8 10.19	− 27.79	14.52	+ 8 32 27.88	26.07
α Leonis	10 3 15.085	− .560	.658	10 2 ——	—			+12 28 ——	
24 Cephei S. P.	8 8.67	+ .84	.663	22 7 46.85	25 43 21.41	+144.14	14.52	+71 49 28.97	25.42
118 l. c.	30 45.16	+1.22	.696	22 30 23.68	21 52 3.37	+118.62	14.52	+75 41 12.53	. . .
1 Leonis	44 12.885	− .549	.699	10 43 49.637	288 41 14.41	− 25.05	14.52	+11 5 34.84	25.67
147	55 7.276	− .331	.710	10 54 44.235	259 51 27.23	− 72.63	14.52	− 17 44 59.92	. . .
χ Leonis	11 0 4.551	− .525	.715	10 59 41.311	285 29 26.90	− 28.69	14.52	+ 7 53 43.69	25.22
π Cephei S. P.	4 53.92	+1.12	.720	23 4 32.32	22 43 50.68	+123.84	14.52	+74 49 20.00	25.46
σ Leonis	16 11.908	− .515	.731	11 15 48.662	284 11 29.52	− 30.25	14.52	+ 6 35 44.75	26.44
(1) 122 l. c.	27 43.07	+7.06	.743	23 27 27.39	10 50 6.35	+ 75.03	14.52	+86 43 53.14	. . .
148	39 54.698	− .331	.755	11 39 31.612	259 49 46.69	− 72.77	14.52	− 17 46 40.60	. . .
124 l. c.	50 4.75	+1.02	.765	23 49 43.01	23 43 17.61	+130.13	14.52	+73 49 46.78	. . .
o Virginis	12 0 20.479	− .535	.775	11 59 57.169	286 54 7.47	− 27.06	14.52	+ 9 18 25.89	24.85
4 H. Draconis	7 52.93	−2.51	.783	12 7 27.66	355 46 12.62	+ 43.91	14.52	+78 11 42.01	25.93
η Virginis	15 0.773	− .465	.790	12 14 37.518	277 30 18.17	− 38.87	14.52	− 0 5 35.22	24.53
(2) 149	48 6.007	− .119	.823	12 47 43.065	238 1 36.23	−214.13	14.52	−39 37 12.42	. . .
43 H. Cephei S.P.	54 32.19	+5.24	.830	0 54 14.60	11 52 0.31	+ 77.88	14.52	+85 41 56.33	25.58
S Virginis	13 4 59.759	− .430	.840	13 4 36.489	272 36 41.08	− 46.23	14.52	− 4 59 19.67	25.52
211	15 10.634	− .160	.850	13 14 47.624	241 27 51.66	−169.03	14.52	−36 10 11.89	. . .
Gr. 2001	23 59.90	−1.85	.859	13 23 35.19	350 30 27.19	+ 36.32	14.52	+72 55 48.99	25.73
ζ Virginis	29 49.559	− .465	−22.865	13 29 26.229	277 31 44.36	− 38.80	14.52	− 0 4 8.96	26.13

(1) Through clouds. (2) Very unsteady.

c +s.010	c′ −s.007	ΔT −22s.747	Nadir	134° 55′ 40″.07	t 41.4
b − .621		at 11h 32m	Equator	277 35 14 .52	B 25.74
a + .057		ρ −.060			T 43

MAY 11, 1896. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
χ Leonis	11 0 8.551	− .501	−26.796	10 59 41.254	285 29 27.29	− 28.87	14.63	+ 7 53 43.79	25.79
π Cephei S. P.	4 58.10	+1.11	.800	23 4 32.41	22 43 49.99	+124.63	14.63	+74 49 20.01	26.16
σ Leonis	16 15.931	− .495	.810	11 15 48.626	284 11 31.22	− 30.44	14.63	+ 6 35 46.15	25.73
122 l. c.	27 49.15	+6.89	.819	23 27 29.22	10 50 6.49	+ 75.50	14.63	+86 43 52.64	. . .
148	39 58.658	− .314	.829	11 39 31.515	259 49 47.17	− 73.30	14.63	−17 46 40.76	. . .
124 l. c.	50 9.01	+ .99	.838	23 49 43.16	23 43 17.40	+131.19	14.63	+73 49 46.04	. . .
o Virginis	12 0 24.401	− .514	.846	11 59 57.041	286 54 8.00	− 27.31	14.63	+ 9 18 26.06	25.46
4 H. Draconis	7 56.68	−2.44	.853	12 7 27.39	355 46 13.31	+ 44.34	14.63	+78 11 43.02	26.15
η Virginis	15 4.762	− .444	.859	12 14 37.459	277 30 18.24	− 39.28	14.63	− 0 5 35.67	25.64
149	48 10.010	− .105	.886	12 47 43.019	238 1 37.34	−216.12	14.63	−39 37 13.41	. . .
43 H. Cephei S. P.	54 37.45	+5.11	.891	0 54 15.67	11 52 1.13	+ 78.60	14.63	+85 41 54.90	25.47
9 Virginis	13 5 3.712	− .410	.900	13 4 36.402	272 36 41.37	− 46.66	14.63	− 4 59 19.92	26.36
211	15 14.674	− .145	.909	13 14 47.620	241 27 51.67	−170.63	14.63	−36 10 13.59	. . .
Gr. 2001	24 3.59	−1.80	.916	13 23 34.87	350 30 28.80	+ 36.71	14.63	+72 55 50.88	25.39
ζ Virginis	29 53.642	− .446	−26.921	13 29 26.275	277 31 45.33	− 39.27	14.63	− 0 4 8.57	26.46

c +s.013 c' −s.004 ΔT −26s.855 Nadir 134° 55′ 40″.54 t 39.4
b − .603 at 12h 11m Equator 277 35 14 .63 B 25.90
a + .061 ρ −.050 T 40

JUNE 8, 1896. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
β Librae	15 12 16.265	− .534	−48.126	15 11 27.605	268 35 53.84	− 51.25	16.36	− 9 0 13.77	26.08
γ Urs. Min.	21 47.82	−1.34	.133	15 20 58.35	349 46 52.51	+ 34.13	16.36	+72 12 10.28	26.20
5 H. Cam. S. P.	40 9.88	+ .15	.146	3 39 21.88	26 32 5.39	+146.20	16.36	+71 0 44.77	25.38
ϵ Serpentis	46 29.637	− .593	.150	15 45 40.894	282 23 1.34	− 31.38	16.36	+ 4 47 13.60	25.55
216	53 25.650	− .454	.155	15 52 37.041	251 47 43.19	− 96.71	16.36	−25 49 9.88	. . .
Gr. 750 S. P.	16 4 34.11	+2.47	.163	4 3 48.42	12 17 5.35	+ 76.63	16.36	+85 16 54.38	25.39
δ Ophiuchi	9 45.609	− .558	.167	16 8 56.884	274 10 9.49	− 42.40	16.36	− 3 25 49.27	25.90
ζ Ophiuchi	32 17.865	− .528	.182	16 31 29.155	267 14 33.88	− 53.98	16.36	−10 21 36.46	26.04
η Herculis N	40 11.880	− .774	.188	16 39 22.918	316 42 17.51	+ 1.53	16.36	+39 7 2.68	25.79
ϵ Urs. Min.	57 35.33	−2.41	.200	16 56 44.72	359 46 49.48	+ 48.89	16.36	+82 12 22.01	25.10
π Herculis S	17 12 17.454	− .759	.210	17 11 28.485	314 30 41.85	− 0.36	16.36	+36 55 25.13	25.00
217	24 34.210	− .386	.219	17 23 45.605	240 25 15.47	−174.71	16.36	− 37 12 55.60	. . .
26 l. c.	29 19.92	+2.38	.222	5 28 34.08	12 25 11.15	+ 76.89	16.36	+85 8 48.32	. . .
153	36 10.337	− .375	.227	17 35 21.735	238 39 49.77	−197.25	16.36	−38 58 43.84	. . .
ν Ophiuchi	54 10.151	− .531	.240	17 53 21.380	267 50 22.48	− 52.75	16.36	− 9 45 46.63	26.47
155	18 0 0.097	− .429	.244	17 59 11.424	247 11 38.77	−119.08	16.36	−30 25 36.67	. . .
220	11 28.260	− .390	.252	18 10 39.618	240 50 26.61	−169.72	16.36	−36 47 39.47	. . .
η Serpentis	16 47.702	− .560	.256	18 15 58.886	274 40 17.80	− 41.52	16.36	− 2 55 40.08	25.99
χ Draconis	23 49.07	−1.37	.260	18 22 59.44	350 15 45.76	+ 34.75	16.36	+72 41 4.15	25.42
23 H. Cam. S. P.	29 15.67	+ .80	.264	6 28 28.21	17 52 55.31	+ 95.63	16.36	+79 40 45.42	26.48
ϵ Lyrae N	41 45.429	− .778	.273	18 40 56.378	317 8 44.46	+ 1.90	16.36	+39 33 30.00	26.25
β Lyrae S	47 6.179	− .736	.277	18 46 17.166	310 49 41.27	− 3.51	16.36	+33 14 21.40	25.99
222	52 23.817	− .477	.281	18 51 35.039	256 21 57.88	− 79.90	16.36	−21 14 38.38	. . .
λ Aquilae	19 1 35.766	− .552	.287	19 0 46.927	272 33 37.97	− 44.63	16.36	− 5 2 23.02	26.11
ω Aquilae	13 47.871	− .622	−48.295	19 12 58.954	289 0 2.78	− 23.81	16.36	+11 24 22.61	25.43

c +s.013 c' −s.004 ΔT −48s.213 Nadir 134° 55′ 42″.31 t 60.0
b − .602 at 17h 16m Equator 277 35 16 .36 B 25.87
a − .150 ρ −.042 T 60

JUNE 10, 1896. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
β Librae	15 12 17.629	− .615	−49.416	15 11 27.598	268 35 54.98	− 50.84	16.84	− 9 0 12.70	25.15
γ Urs. Min.	21 48.79	−1.15	.421	15 20 58.22	349 46 54.17	+ 33.83	16.84	+72 12 11.16	25.90
5 H. Cam. S. P.	40 11.35	− .17	.430	3 39 21.75	26 32 6.99	+144.69	16.84	+71 0 45.16	26.23
ε Serpentis	46 31.037	− .656	.433	15 45 40.948	282 23 1.59	− 31.02	16.84	+ 4 47 13.73	25.75
216	53 27.043	− .561	.437	15 52 37.045	251 47 43.29	− 95.60	16.84	−23 49 9.15	. . .
Gr. 750 S. P.	16 4 36.87	+1.39	.442	4 3 48.82	12 17 7.01	+ 75.76	16.84	+85 16 54.07	25.67
δ Ophiuchi	9 46.944	− .632	.445	16 8 56.867	274 10 9.78	− 41.91	16.84	− 3 25 48.97	25.90
ζ Ophiuchi	32 19.251	− .611	.456	16 31 29.184	267 14 33.81	− 53.35	16.84	−10 21 36.38	26.16
η Herculis S	40 13.187	− .776	.460	16 39 22.951	316 42 18.23	+ 1.51	16.84	+39 7 2.90	26.19
ε Urs. Min.	57 35.67	−1.86	.469	16 56 44.34	359 46 50.74	+ 48.35	16.84	+82 12 22.25	25.59
π Herculis N	17 12 18.775	− .766	.476	17 11 28.533	314 30 42.66	− 0.35	16.84	+36 55 25.47	25.33
217	24 35.696	− .514	.482	17 23 45.700	240 25 12.88	−172.91	16.84	−37 12 56.87	. . .
26 l. c.	29 22.12	+1.30	.484	5 28 33.94	12 25 13.25	+ 76.12	16.84	+85 8 47.47	. . .
153	36 11.815	− .506	.488	17 35 21.821	238 39 46.12	−195.22	16.84	−38 58 45.94	. . .
ν Ophiuchi	54 11.551	− .614	.497	17 53 21.440	267 50 22.38	− 52.22	16.84	− 9 45 46.68	26.78
155	18 0 1.611	− .544	.500	17 59 11.567	247 11 36.60	−117.89	16.84	−30 25 38.13	. . .
220	11 29.597	− .517	.506	18 10 39.574	240 50 25.25	−167.99	16.84	−36 47 39.58	. . .
η Serpentis	16 49.102	− .633	.508	18 15 58.961	274 40 17.63	− 41.10	16.84	− 2 55 40.31	26.57
χ Draconis	23 50.18	−1.17	.512	18 22 59.50	350 15 47.25	+ 34.41	16.84	+72 41 4.82	25.54
23 H. Cam. S. P.	29 17.49	+ .26	.514	6 28 28.24	17 52 58.14	+ 94.89	16.84	+79 40 43.81	25.55
ε Lyrae S	41 46.764	− .778	.521	18 40 56.465	317 8 45.57	+ 1.88	16.84	+39 33 30.61	26.36
β Lyrae N	47 7.522	− .750	.524	18 46 17.248	310 49 42.17	− 3.48	16.84	+33 14 21.85	26.24
222	52 25.217	− .577	.526	18 51 35.114	256 21 57.72	− 79.19	16.84	−21 14 38.31	. . .
λ Aquilae	19 1 37.130	− .628	.531	19 0 46.971	272 33 38.25	− 44.25	16.84	− 5 2 22.84	26.30
ω Aquilae	13 49.185	− .675	−49.537	19 12 58.973	289 0 3.64	− 23.61	16.84	+11 24 23.19	25.39

c +s.019	c′ +s.002	ΔT −49s.478	Nadir 134° 55′ 42″.84	t 64.6
b − .613		at 17h 16m	Equator 277 35 16 .84	B 25.85
a − .258		ρ − .030		T 64

JUNE 11, 1896. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
β Librae	15 12 18.179	− .508	−50.037	15 11 27.634	268 35 53.58	− 50.55	16.26	− 9 0 13.23	26.07
γ Urs. Min.	21 49.48	−1.37	.043	15 20 58.07	349 46 53.69	+ 33.63	16.23	+72 12 11.09	26.54
5 H. Cam. S. P.	40 11.77	+ .21	.054	3 39 21.93	26 32 8.57	+143.78	16.17	+71 0 43.82	25.41
ε Serpentis	46 31.552	− .572	.058	15 45 40.922	282 23 1.12	− 30.82	16.15	+ 4 47 14.15	25.77
216	53 27.493	− .422	.062	15 52 37.009	251 47 42.34	− 94.94	16.13	−23 49 8.73	. . .
Gr. 750 S. P.	16 4 36.10	+2.66	.069	4 3 48.69	12 17 6.50	+ 75.21	16.09	+85 16 54.38	26.58
δ Ophiuchi	9 47.437	− .534	.072	16 8 56.831	274 10 8.53	− 41.61	16.07	− 3 25 49.15	26.49
ζ Ophiuchi	32 19.815	− .501	.085	16 31 29.229	267 14 32.37	− 53.00	16.00	−10 21 36.63	26.81
η Herculis N	40 13.780	− .766	.090	16 39 22.924	316 42 18.18	+ 1.50	15.97	+39 7 3.71	25.99
ε Urs. Min.	57 36.99	−2.48	.100	16 56 44.41	359 46 50.13	+ 48.01	15.91	+82 12 22.23	26.27
π Herculis S	17 12 19.354	− .750	.109	17 11 28.495	314 30 41.42	− 0.35	15.86	+36 55 25.21	26.22
26 l. c.	29 21.76	+2.57	.120	5 28 34.21	12 25 13.18	+ 75.58	15.81	+85 8 47.05	. . .
153	36 12.265	− .334	.124	17 35 21.807	238 39 44.97	−193.88	15.78	−38 58 44.69	. . .
ν Ophiuchi	54 12.058	− .505	.134	17 53 21.419	267 50 20.43	− 51.91	15.72	− 9 45 47.20	27.75
155	18 0 2.118	− .394	.138	17 59 11.586	247 11 35.16	−117.22	15.70	−30 25 37.76	. . .
220	11 30.140	− .351	.145	18 10 39.644	240 50 22.32	−167.19	15.67	−36 47 40.52	. . .
η Serpentis	16 49.666	− .536	.148	18 15 58.982	274 40 16.16	− 40.92	15.65	− 2 55 40.41	27.16
χ Draconis	23 50.88	−1.40	.152	18 22 59.33	350 15 46.86	+ 34.27	15.63	+72 41 5.50	25.56
23 H. Cam. S. P.	29 17.63	+ .90	.156	6 28 28.37	17 52 57.70	+ 94.33	15.61	+79 40 43.58	25.98
ε Lyrae N	41 47.357	− .770	.163	18 40 56.424	317 8 44.67	+ 1.87	15.57	+39 33 30.97	26.69
β Lyrae S	47 8.015	− .725	.166	18 46 17.124	310 49 41.31	− 3.47	15.55	+33 14 22.29	26.46
222	52 25.788	− .446	.169	18 51 35.173	256 21 56.01	− 78.89	15.53	−21 14 38.41	. . .
λ Aquilae	19 1 37.309	− .527	.175	19 0 47.007	272 33 37.57	− 44.09	15.50	− 5 2 22.02	25.98
ω Aquilae	13 49.821	− .604	−50.182	19 12 59.035	289 0 3.32	− 23.52	15.46	+11 24 24.34	24.82

c +s.019	c′ +s.002	ΔT −50s.112	Nadir 134° 55′ 42″.21	t 67.7
b − .601		at 17h 16m	Equator 277 35 15 .85	B 25.86
a − .123		ρ − .036	at 17h.25 Rate −0″.20	T 69

JUNE 12, 1896. CIR. E, WT. 5, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
β Librae	15 12 18.779	− .598	−50.562	15 11 27.619	268 35 53.84	− 50.59	16.86	− 9 0 13.61	25.76
γ Urs. Min.	21 49.86	−1.17	.567	15 20 58.12	349 46 53.87	+ 33.67	16.86	+72 12 10.68	26.48
5 H. Cam. S. P.	40 12.91	− .13	.576	3 39 22.20	26 32 7.90	+144.02	16.86	+71 0 44.94	25.99
ϵ Serpentis	46 32.209	− .648	.579	15 45 40.982	282 23 2.15	− 30.87	16.86	+ 4 47 14.42	24.89
216	53 28.200	− .556	.583	15 52 37.061	251 47 42.71	− 95.06	16.86	−25 49 9.21	. . .
Gr. 750 S. P.	16 4 38.15	+1.41	.588	4 3 48.97	12 17 6.93	+ 75.30	16.86	+85 16 54.63	26.36
δ Ophiuchi	9 48.080	− .630	.591	16 8 56.859	274 10 9.75	− 41.66	16.86	− 3 25 48.77	25.48
ζ Ophiuchi	32 20.436	− .618	.602	16 31 29.216	267 14 33.42	− 53.01	16.86	−10 21 36.45	25.97
η Herculis S	40 14.280	− .777	.606	16 39 22.897	316 42 18.08	+ 1.50	16.86	+39 7 2.72	26.52
ϵ Urs. Min.	57 36.73	−1.80	.615	16 56 44.32	359 46 51.06	+ 47.99	16.86	+82 12 22.19	25.91
π Herculis N	17 12 19.911	− .769	.622	17 11 28.520	314 30 42.92	− 0.35	16.86	+36 55 25.71	25.28
217	24 36.960	− .549	.628	17 23 45.783	240 25 13.74	−171.54	16.86	− 37 12 54.66	. . .
96 l. c.	29 23.95	+1.11	.631	5 28 34.43	12 25 13.65	+ 75.52	16.86	+85 8 47.69	. . .
153	36 13.051	− .548	.634	17 35 21.869	238 39 47.30	−193.70	16.86	− 38 58 43.26	. . .
ν Ophiuchi	54 12.786	− .645	.643	17 53 21.498	267 50 22.00	− 51.86	16.86	− 9 45 46.72	26.63
155	18 0 2.804	− .589	.646	17 59 11.569	247 11 36.84	−117.11	16.86	−30 25 37.13	. . .
220	11 30.840	− .571	.652	18 10 39.617	240 50 25.06	−167.00	16.86	− 36 47 38.80	. . .
η Serpentis	16 50.302	− .667	.654	18 15 58.981	274 40 18.10	− 40.87	16.86	− 2 55 39.63	25.79
χ Draconis	23 51.25	−1.12	.658	18 22 59.47	350 15 47.94	+ 34.23	16.86	+72 41 5.31	25.37
23 H. Cam. S. P.	29 18.88	+ .07	.661	6 28 28.29	17 52 57.92	+ 94.20	16.86	+79 40 44.74	26.73
ϵ Lyrae S	41 47.886	− .789	.667	18 40 56.430	317 8 46.00	+ 1.87	16.86	+39 33 31.01	26.27
β Lyrae N	47 8.701	− .769	.670	18 46 17.262	310 49 42.64	− 3.47	16.86	+33 14 22.31	26.02
222	52 26.467	− .633	.672	18 51 35.162	256 21 57.04	− 78.83	16.86	−21 14 38.65	. . .
λ Aquilae	19 1 38.387	− .685	.677	19 0 47.025	272 33 38.65	− 44.06	16.86	− 5 2 22.27	25.65
ω Aquilae	13 50.407	− .713	−50.683	19 12 59.011	289 0 3.84	− 23.50	16.86	+11 24 23.48	25.19

c +s.013 c' −s.004 ΔT −50s.624 Nadir 134° 55′ 42″.53 ℓ 67.4
b − .608 at 16h.9 Rate −s.005 at 17h 16m Equator 277 35 16 .86 B 25.84
a − .267 at 16 .7 Rate − .02 ρ −.030 T 67

JUNE 16, 1896. CIR. E, WT. 2, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
η Herculis N	16 40 15.959	− .781	−52.212	16 39 22.966	316 42 19.95	+ 1.51	17.81	+39 7 3.65	26.80
κ Ophiuchi	53 40.829	− .746	.217	16 52 47.866	287 7 45.92	− 25.65	17.81	+ 9 32 2.46	25.95
19 H. Cam. S. P.	17 6 16.22	− .44	.221	5 5 23.56	18 26 54.79	+ 97.20	17.81	+79 6 45.82	25.76
π Herculis S	12 21.583	− .779	.223	17 11 28.581	314 30 44.69	− 0.35	17.81	+36 55 26.53	25.78
219	27 29.933	− .713	.228	17 26 36.992	240 36 17.97	−170.79	17.81	− 37 1 50.63	. . .
β Ophiuchi	39 16.309	− .750	.232	17 38 23.327	282 12 19.47	− 31.23	17.81	+ 4 36 30.43	25.92
ψ Draco. Aus.	44 44.18	− .88	.234	17 43 51.07	349 46 35.29	+ 33.84	17.81	+72 11 51.32	25.97
ν Ophiuchi	54 14.458	− .743	.237	17 53 21.478	267 50 23.88	− 52.23	17.81	− 9 45 46.16	26.51
72 Ophiuchi	18 3 21.279	− .757	.240	18 2 28.282	287 8 32.79	− 25.62	17.81	+ 9 32 49.36	25.70
η Serpentis	16 52.016	− .753	.245	18 15 59.018	274 40 19.26	− 41.16	17.81	− 2 55 39.71	26.54
156	40° 6.513	− .746	.252	18 39 13.515	250 31 5.49	−101.15	17.81	−27 5 53.47	. . .
51 H. Cephei S. P.	52 31.68	− .19	.256	6 51 39.23	10 21 18.87	+ 70.49	17.81	+87 12 48.45	25.90
223	19 1 23.792	− .753	.259	19 0 30.780	249 47 41.15	−104.62	17.81	− 27 49 21.28	. . .
32 l. c.	10 3.89	− .59	.262	7 9 11.04	14 57 3.50	+ 84.33	17.81	+82 36 49.98	. . .
δ Aquilae	21 11.523	− .768	.266	19 20 18.489	280 30 14.79	− 33.45	17.81	+ 2 54 23.53	25.96
λ Urs. Min.	28 9.34	−1.82	.268	19 27 15.25	6 32 52.82	+ 61.61	17.81	+88 58 36.62	25.22
γ Aquilae	42 14.936	− .772	.273	19 41 21.891	287 57 15.51	− 24.91	17.81	+10 21 32.79	25.42
36 l. c.	54 22.56	− .12	.277	7 53 30.16	8 37 22.15	+ 66.52	17.81	+88 56 49.14	. . .
Br. 1147 S. P.	20 7 22.83	− .73	.281	8 6 29.82	21 28 48.41	+112.29	17.81	+76 4 37.11	26.24
κ Cephei	13 19.03	− .80	.283	20 12 25.95	354 58 19.20	+ 41.16	17.81	+77 23 42.55	25.40
γ Cygni N	19 25.350	− .778	.285	20 18 32.287	317 30 34.65	+ 2.21	17.81	+39 55 19.05	25.84
ϵ Delphini	29 10.551	− .780	.289	20 28 17.482	288 32 40.80	− 24.32	17.81	+10 56 58.67	25.42
ϵ Cygni S	42 55.794	− .779	−52.293	20 42 2.722	311 10 6.62	− 3.22	17.81	+33 34 45.59	25.64

c +s.010 c' −s.007 ΔT −52s.250 Nadir 134° 55′ 43″.74 ℓ 64.0
b − .612 at 18h 32m Equator 277 35 17 .81 B 25.92
a − .443 at 19h.0 Rate −s.02 ρ −.020 T 66

JUNE 17, 1896. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
η Herculis S	16 40 16.301	− .771	−52.641	16 39 22.889	316 42 20.72	+ 1.51	17.16	+39 7 5.07	25.63
κ Ophiuchi	53 41.293	− .784	.644	16 52 47.865	287 7 45.60	− 25.73	17.22	+ 9 32 2.65	25.91
19 H. Cam. S. P.	17 6 17.07	− .88	.646	5 5 23.54	18 26 54.85	+ 97.52	17.28	+79 6 44.91	25.10
π Herculis N	12 21.961	− .771	.647	17 11 28.543	314 30 44.37	− 0.35	17.31	+36 55 26.70	25.87
219	27 30.425	− .802	.651	17 26 36.972	240 36 17.58	−111.38	17.39	−37 1 51.19	. . .
β Ophiuchi	39 16.752	− .786	.653	17 38 23.313	282 12 19.54	− 31.38	17.45	+ 4 36 30.71	25.76
ψ Draco. Aus.	44 44.46	− .73	.654	17 43 51.08	349 46 35.04	+ 34.03	17.47	+72 11 51.60	25.97
ν Ophiuchi	54 14.979	− .792	.656	17 53 21.531	267 50 23.54	− 52.59	17.52	− 9 45 46.57	26.97
72 Ophiuchi	18 3 21.736	− .784	.658	18 2 28.294	287 8 33.02	− 28.80	17.57	+ 9 32 49.65	25.56
η Serpentis	16 52.480	− .788	.660	18 15 59.032	274 40 19.40	− 41.47	17.63	− 2 55 39.70	26.63
156	40 6.920	− .797	.665	18 39 13.458	250 31 6.15	−101.94	17.76	−27 5 53.55	. . .
51 H. Cephei S. P.	52 33.14	−1.18	.667	6 51 39.29	10 21 19.15	+ 71.01	17.82	+87 12 47.66	25.39
223	19 1 24.227	− .797	.669	19 0 30.761	249 47 42.16	−105.27	17.86	−27 49 20.97	. . .
32 l. c.	10 4.43	− .93	.671	7 9 10.83	14 57 3.85	+ 84.78	17.91	+82 36 49.28	. . .
δ Aquilae	21 11.923	− .786	.673	19 20 18.464	280 30 15.69	− 33.62	17.96	+ 2 54 24.11	25.53
λ Urs. Min.	28 7.94	+ .28	.674	19 27 15.55	6 32 52.88	+ 61.89	18.00	+88 58 36.77	25.35
γ Aquilae	42 15.386	− .783	.677	19 41 21.926	287 57 15.94	− 25.00	18.06	+10 21 32.88	25.51
36 l. c.	54 23.56	−1.83	.680	7 53 29.05	8 37 22.85	+ 66.73	18.13	+88 56 48.55	. . .
Br. 1147 S. P.	20 7 23.39	− .86	.682	8 6 29.85	21 28 50.45	+112.56	18.19	+76 4 35.18	24.54
κ Cephei	13 19.41	− .71	.683	20 12 26.02	354 58 19.61	+ 41.25	18.22	+77 23 42.64	25.58
γ Cygni S	19 25.750	− .771	.685	20 18 32.294	317 30 34.11	+ 2.21	18.25	+39 55 18.07	27.07
ε Delphini	29 10.951	− .784	.687	20 28 17.480	288 32 41.50	− 24.36	18.30	+10 56 58.84	25.43
ε Cygni N	42 56.165	− .774	−52.689	20 42 2.702	311 10 6.91	− 3.23	18.37	+33 34 45.31	26.16

c +ˢ.016 c' −ˢ.001 ΔT −52ˢ.663 Nadir 134° 55′ 43″.63 t 59.8
b − .613 at 18ʰ 32ᵐ Equator 277 35 17 .72 B 25.80
a − .493 ρ −.012 at 18ʰ.5 Rate +0″.3 T 61

JUNE 19, 1896. CIR. E, WT. 3, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
η Herculis N	16 40 17.315	− .811	−53.513	16 39 22.991	316 42 20.37	+ 1.51	16.43	+39 7 5.45	25.97
κ Ophiuchi	53 42.072	− .725	.530	16 52 47.817	287 7 45.15	− 25.72	16.43	+ 9 32 3.00	26.08
19 H. Cam. S. P.	17 6 17.12	+ .01	.536	5 5 23.59	18 26 54.28	+ 97.44	16.43	+79 6 44.71	25.59
π Herculis S	12 22.918	− .803	.539	17 11 28.576	314 30 44.55	− 0.35	16.43	+36 55 27.77	25.55
219	27 31.140	− .601	.547	17 26 36.992	240 36 18.07	−171.16	16.43	−37 1 49.52	. . .
β Ophiuchi	39 17.585	− .713	.553	17 38 23.319	282 12 18.45	− 31.30	16.43	+ 4 36 30.72	26.24
ψ Draco. Aus.	44 45.68	−1.12	.556	17 43 51.00	349 46 34.98	+ 33.92	16.43	+72 11 52.47	25.96
ν Ophiuchi	54 15.801	− .680	.560	17 53 21.561	267 50 22.28	− 52.35	16.43	− 9 45 46.50	27.23
72 Ophiuchi	18 3 22.643	− .725	.565	18 2 28.353	287 8 32.58	− 25.67	16.43	+ 9 32 50.48	25.30
η Serpentis	16 53.309	− .695	.571	18 15 59.043	274 40 18.77	− 41.26	16.43	− 2 55 38.92	26.27
156	40 7.799	− .634	.583	18 39 13.582	250 31 4.16	−101.41	16.43	−27 5 53.68	. . .
51 H. Cephei S. P.	52 30.98	+2.07	.589	6 51 39.46	10 21 19.20	+ 70.61	16.43	+87 12 46.62	25.14
223	19 1 25.042	− .632	.594	19 0 30.816	249 47 39.38	−104.67	16.43	−27 49 21.72	. . .
32 l. c.	10 4.17	+ .34	.598	7 9 10.91	14 57 3.32	+ 84.23	16.43	+82 36 48.88	. . .
δ Aquilae	21 12.759	− .710	.604	19 20 18.445	280 30 14.01	− 33.39	16.43	+ 2 54 24.19	25.97
λ Urs. Min.	28 18.04	−8.26	.607	19 27 16.17	6 32 52.57	+ 61.40	16.43	+88 58 37.54	25.36
γ Aquilae	42 16.272	− .727	.614	19 41 21.931	287 57 14.30	− 24.78	16.43	+10 21 33.09	25.88
36 l. c.	54 14.48	+6.65	.620	7 53 27.51	8 37 22.30	+ 66.04	16.43	+88 56 48.09	. . .
Br. 1147 S. P.	20 7 23.54	− .16	.627	8 6 29.75	21 28 49.44	+111.22	16.43	+76 4 35.77	25.78
κ Cephei	13 21.12	−1.31	.630	20 12 26.18	354 58 19.06	+ 40.75	16.43	+77 23 43.38	25.63
γ Cygni N	19 26.871	− .815	.633	20 18 32.423	317 30 33.51	+ 2.19	16.43	+39 55 19.27	26.63
ε Delphini	29 11.965	− .729	.638	20 28 17.598	288 32 39.90	− 24.05	16.43	+10 56 59.42	25.45
ε Cygni S	42 57.165	− .791	−53.644	20 42 2.730	311 10 6.16	− 3.19	16.43	+33 34 46.54	25.65

c +ˢ.016 c' −ˢ.001 Δ T −53ˢ.579 Nadir 134° 55′ 42″.48 t 64.1
b − .640 at 18ʰ 32ᵐ Equator 277 35 16 .43 B 25.86
a − .319 ρ −.030 T 63

JUNE 22, 1896. CIR. E, WT. 4, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
η Herculis S	16 40 18.780	− .809	−55.088	16 39 22.883	316 42 21.71	+ 1.48	16.48	+39 7 6.71	25.43
κ Ophiuchi	53 43.672	− .693	.093	16 52 47.886	287 7 45.11	− 25.24	16.48	+ 9 32 3.39	26.11
19 H. Cam. S. P.	17 6 18.47	+ .37	.098	5 5 23.74	18 26 56.73	+ 95.65	16.48	+79 6 44.10	25.70
π Herculis N	12 24.461	− .797	.101	17 11 28.563	314 30 45.36	− 0.35	16.48	+36 55 28.53	25.57
219	27 32.654	− .543	.107	17 26 37.004	240 36 14.97	−168.04	16.48	−37 1 49.55	. . .
β Ophiuchi	39 19.173	− .678	.112	17 38 23.383	282 12 18.91	− 30.73	16.48	+ 4 36 31.70	25.66
ψ Draco. Aus.	44 47.41	− 1.25	.114	17 43 51.05	349 46 36.77	+ 33.29	16.48	+72 11 53.59	25.79
ν Ophiuchi	54 17.322	− .635	.118	17 53 21.569	267 50 22.06	− 51.37	16.48	− 9 45 45.79	26.71
72 Ophiuchi	18 3 24.079	− .693	.121	18 2 28.265	287 8 32.54	− 25.19	16.48	+ 9 32 50.87	25.40
η Serpentis	16 54.923	− .656	.127	18 15 59.140	274 40 18.29	− 40.45	16.48	− 2 55 38.64	26.30
156	40 9.313	− .580	.136	18 39 13.597	250 31 2.22	− 99.30	16.48	−27 5 53.56	. . .
51 H. Cephei S. P.	52 30.94	+ 3.35	.141	6 51 39.15	10 21 21.14	+ 69.19	16.48	+87 12 46.15	25.60
223	19 1 26.626	− .577	.144	19 0 30.905	249 47 38.06	−102.58	16.48	−27 49 21.00	. . .
32 l. c.	10 5.07	+ .85	.148	7 9 10.77	14 57 5.82	+ 82.59	16.48	+82 36 48.07	. . .
δ Aquilae	21 14.402	− .673	.152	19 20 18.577	280 30 14.09	− 32.75	16.48	+ 2 54 24.86	25.77
λ Urs. Min.	28 22.77	−11.52	.156	19 27 16.09	6 32 54.48	+ 60.25	16.48	+88 58 38.25	25.57
γ Aquilae	42 17.829	− .696	.161	19 41 21.972	287 57 14.80	− 24.33	16.48	+10 21 33.99	25.57
36 l. c.	54 13.04	+ 9.94	.166	7 53 27.81	8 37 24.15	+ 64.95	16.48	+88 56 47.38	. . .
Br. 1147 S. P.	20 7 24.75	+ .15	.171	8 6 29.73	21 28 51.54	+109.57	16.48	+76 4 35.37	26.12
κ Cephei	13 23.01	− 1.50	.173	20 12 26.34	354 58 21.10	+ 40.15	16.48	+77 23 44.77	25.16
γ Cygni S	19 28.400	− .813	.176	20 18 32.411	317 30 34.28	+ 2.15	16.48	+39 55 19.95	26.82
ε Delphini	29 13.501	− .698	.180	20 28 17.623	288 32 39.96	− 23.70	16.48	+10 56 59.78	25.71
ε Cygni N	42 58.872	− .782	−55.185	20 42 2.905	311 10 7.11	− 3.14	16.48	+33 34 47.47	25.55

c −s.008 c' −s.025 ΔT −55s.133 Nadir 134° 55′ 42″.38 t 71.5
b − .611 at 18h 32m Equator 277 35 16 .48 B 25.79
a − .253 ρ −.024 T 72

JUNE 24, 1896. CIR. E, WT. 5, OBSR. T.

Star.	Transit.	Corr.	ΔT	App. R. A.	Circle.	Refr.	Eq.	App. Decl.	φ
	h m s	s	s	h m s	° ′ ″	″	″	° ′ ″	″
Gr. 750 S. P.	16 4 45.65	+1.56	−56.013	4 3 ——	12 17 10.61	+ 74.28	16.55	+85 16 51.66	25.96
δ Ophiuchi	9 53.630	− .701	.016	16 8 56.913	274 10 9.48	− 41.00	16.55	− 3 25 48.07	25.65
ζ Ophiuchi	32 25.972	− .684	.027	16 31 29.261	267 14 33.00	− 52.33	16.55	−10 21 35.88	25.87
η Herculis N	40 19.813	− .843	.031	16 39 22.941	316 42 21.29	+ 1.48	16.55	+39 7 6.22	26.00
ε Urs. Min.	57 41.66	− 2.02	.040	16 56 ——	359 46 55.14	+ 47.40	16.55	+82 12 25.99	25.54
π Herculis S	17 12 25.394	− .829	.047	17 11 28.518	314 30 46.05	− 0.35	16.55	+36 55 29.15	25.04
217	24 42.589	− .606	.053	17 23 45.930	240 25 8.69	−169.50	16.55	−37 12 57.36	. . .
α Ophiuchi	31 6.400	− .745	.057	17 30 9.598	290 13 40.05	− 21.94	16.55	+12 38 1.56	25.38
β Ophiuchi	39 20.209	− .722	.061	17 38 23.426	282 12 18.87	− 30.64	16.55	+ 4 36 31.68	25.56
9 Herculis S	53 41.145	− .832	.068	17 52 44.248	314 51 2.29	− 0.06	16.55	+37 15 45.68	25.55
α Lyrae N	18 34 24.965	− .840	.088	18 33 28.037	316 16 22.89	+ 1.12	16.55	+38 41 7.46	25.74
β Lyrae S	47 14.313	− .812	.095	18 46 17.406	310 49 45.81	− 3.42	16.55	+33 14 25.84	25.86
λ Aquilae	19 1 44.079	− .697	.102	19 0 47.280	272 33 39.30	− 43.48	16.55	− 5 2 20.73	25.46
ω Aquilae	13 56.086	− .740	.108	19 12 59.238	289 0 5.56	− 23.19	16.55	+11 24 25.82	25.29
β Aquilae	51 12.351	− .727	.127	19 50 15.497	283 44 34.52	− 28.88	16.55	+ 6 8 49.09	25.21
γ Cygni N	20 19 29.413	− .848	.141	20 18 32.424	317 30 35.19	+ 2.15	16.55	+39 55 20.79	26.23
ε Delphini	29 14.536	− .741	.146	20 28 17.649	288 32 40.72	− 23.67	16.55	+10 57 0.50	25.07
ε Cygni S	42 59.799	− .814	.152	20 42 2.833	311 10 7.46	− 3.14	16.55	+33 34 47.77	25.45
ν Cygni N	54 17.262	− .852	−56.158	20 53 20.252	318 21 9.54	+ 2.86	16.55	+40 45 55.85	26.15

c −s.019 c' −s.036 ΔT −56s.080 Nadir 134° 55′ 41″.99 t 73.1
b − .626 at 18h 18m Equator 277 35 16 .55 B 25.80
a − .291 ρ −.030 T 73

RESULTS OF OBSERVATION

FOR

INDIVIDUAL STARS,

1893—1896,

AND

COMPARISON WITH EPHEMERIDES.

LIST 1. RESULTS OF OBSERVATION OF THE B. J. LIST OF EQUATORIAL FUNDAMENTAL STARS.

The observed mean places for each year, and the resulting place for 1895.0 are given in these results. The reductions have included the B. J. proper motions.

The observations in the same position, and in each year have been combined, rigorously, with respect to the number; and the separate years are weighted in the same manner. The effect of graduation error, being constant for each position, is accordingly, not precisely represented in the final mean; unless the number of observations in both positions is the same.

Flexure has not been included in the separate determinations, but is applied to the mean results.

The epoch of observation is given for each year, and the mean epoch can be easily obtained from the yearly values, should it be desired, for discussion of proper motion.

The results of observation are combined, for comparison with the Ephemerides, at the close of the series of separate stars: Tables XI and XII.

It was not intended to secure a uniform number of observations, for the stars of this list. Such were included in each program, as were required for fundamental determinations, with an average of two per hour, or eight stars for the usual program of four hours.

The original list, selected by Doctor AUWERS, comprised 99 stars. Omitting several, for which less than three observations were secured, there are 86 included in this series, mainly between $-10°$ and $+15°$.

In these determinations, nights upon which less than six or seven fundamentals have been taken are excluded, and the series gives the places, depending upon 1338 observations—an average of above 15 per star. A conservative course has been employed in the rejection of observations, for reason of large residuals. But two observations in Right Ascension, and two in Declination, have been rejected in this series—less than one sixth of one per cent.

Since eight fundamental stars were observed, almost without exception, each night, for the results here included, the place of any star may be obtained, free from the effect of its use as a fundamental, by increasing the residual first obtained with the reduction constants of the night, by one seventh of its amount. This is the "Systematic Reduction," the last correction applied; and the resulting place is that which would have been derived, if the observations had been reduced with the

seven remaining stars as fundamental. The general development of this correction is as follows:

If there are n quantities, and the residual of one quantity A, is $+v$, the sum of the residuals of the remaining $(n-1)$ quantities is $-v$.

The mean residual of the $(n-1)$ quantities is, then, $\frac{-v}{(n-1)}$; and this represents the difference between the mean of n quantities and the mean of $(n-1)$.

The quantity A will differ from the new mean of $(n-1)$, by: $+v - \frac{-v}{(n-1)} = \frac{n}{(n-1)} v$.

If, on the contrary, a new quantity A is to be combined with m quantities, from whose mean it differs by $+v$, the difference between the means will be $\frac{+v}{(m+1)}$. The residual of A from the new mean of $(m+1)$ will be: $+v - \frac{+v}{m+1} = \frac{m}{(m+1)} v$.

γ PEGASI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″	
B. J.	2.6	0 7 49.695	+14 35 59.17	
A. E.		49.708	59.16	
C. T.		49.62	59.2	
N. A.		49.654	58.80	
Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 7	E	43.466	19.29	25.38
8		.505	19.04	25.43
15		.420	19.00	——
21		.470	18.75	25.95
1893.87	4	43.465	19.02	25.59
1894.				
Oct. 25	W	46.570	38.73	25.74
29		.598	38.82	25.54
Nov. 5		.584	38.44	26.26
6		.609	38.48	26.11
1894.84	4	46.590	38.62	25.91
1895.				
Oct. 1	E	49.698	59.40	24.85
7		.688	58.73	26.21
9		.716	59.23	25.44
24		.714	58.96	25.67
1895.78	4	49.704	59.08	25.54
East	4	49.633	59.07	25.59
West	4	.674	58.65	25.91
East	4	.704	59.08	25.54
		49.670	58.93	25.68
Flex.			−.02	−.04
			58.91	25.64
Sys. Red.		−.004	−.04	
1895.0	12	0 7 49.666	+14 35 58.87	
Obs. − B. J.		−.029	−0.30	
Obs. − A. E.		−.042	−0.29	
Obs. − C. T.		+.05	−0.3	
Obs. − N. A.		+.012	+0.07	

12 CETI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″	
B. J.	6.0	0 24 40.807	−4 32 15.27	
A. E.		40.794	14.79	
C. T.		40.71	14.2	
N. A.		40.758	15.42	
303.		40.806	14.70	
Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 2	E	34.705	55.23	25.70
3		.695	55.28	26.25
5		.712	54.90	25.66
10		.715	55.28	26.35
11		.726	55.50	26.49
12		.688	55.57	26.35
13		.674	55.40	26.81
17		.695	55.51	26.57
1893.77	8	34.701	55.33	26.27
1894.				
Oct. 3	W	37.701	35.23	25.64
4		.705	35.18	25.28
5		.760	34.96	25.04
9		.741	35.44	25.91
1894.76	4	37.727	35.20	25.47
East	8	40.823	15.47	26.27
West	4	.788	15.27	25.47
		40.811	−15.40	26.00
Flex.			+ .01	−.07
			−15.39	25.93
Sys. Red.		+.001	− .02	
1895.0	12	0 24 40.812	−4 32 15.41	
Obs. − B. J.		+.005	−0.14	
Obs. − A. E.		+.018	−0.62	
Obs. − C. T.		+.10	−1.2	
Obs. − N. A.		+.054	+0.01	
Obs. − 303.		+.006	−0.71	

ε PISCIUM.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	0 57 29.570	+7 19 29.50
A. E.		29.585	29.13
C. T.		29.63	28.7
N. A.		29.546	28.81

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 3	E	23.367	18 50.31	26.36
5		.304	49.58	26.88
10		.368	50.30	26.47
11		.392	50.17	26.52
12		.368	50.58	25.90
13		.348	50.40	26.71
17		.362	50.42	26.34
1893.78	7	23.358	50.25	26.45
1894.				
Oct. 25	W	26.460	19 10.58	24.79
29		.497	9.63	25.89
Nov. 5		.431	9.75	25.85
6		.468	9.73	25.76
1894.84	4	26.464	9.92	25.57
East	7	29.574	29.18	26.45
West	4	.572	29.38	25.57
		29.573	29.25	26.13
Flex.			−.01	−.05
			29.24	26.08
Sys. Red.		.000	−.04	
1895.0	11	0 57 29.573	+7 19 29.20	
Obs. − B. J.		+.003	−0.30	
Obs. − A. E.		−.012	+0.07	
Obs. − C. T.		−.06	+0.5	
Obs. − N. A.		+.027	+0.39	

9 CETI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.0	1 18 46.492	−8 43 30.87
A. E.		46.475	30.84
C. T.		46.43	30.5
N. A.		46.428	30.99
303.		46.480	30.47

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 11	E	40.454	44 8.27	26.15
12		.456	8.26	25.93
13		.492	8.91	27.21
17		.463	9.03	26.98
1893.79	4	40.466	8.62	26.57
1894.				
Oct. 3	W	43.524	43 49.70	25.76
4		.545	50.74	26.49
5		.495	50.66	26.39
9		.475	49.58	25.70
10		.482	50.00	25.93
12		.508	50.13	26.22
16		.522	50.30	26.33
22		.482	50.06	26.41
1894.78	8	43.504	50.15	26.15
East	4	46.459	31.25	26.57
West	8	.501	31.47	26.15
		46.487	−31.40	26.29
Flex.			+ .01	−.07
			−31.39	26.22
Sys. Red.		−.001	− .07	
1895.0	12	1 18 46.486	−8 43 31.46	
Obs. − B. J.		−.006	−0.59	
Obs. − A. E.		+.011	−0.62	
Obs. − C. T.		+.06	−1.0	
Obs. − N. A.		+.058	−0.47	
Obs. − 303.		+.006	−0.99	

ν PISCIUM.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.6	1 35 57.954	+4 57 22.23
A. E.		58.001	22.24
C. T.		57.89	22.3
N. A.		57.930	22.24
303.		57.951	22.23

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 2	E	51.758	56 45.47	25.74
3		.704	45.55	25.57
13		.746	45.36	25.39
14		.794	45.33	26.04
Dec. 6		.758	44.81	26.19
11		.739	45.77	25.42
19		.754	44.99	26.33
29		.715	45.61	25.56
1893.91	8	51.746	45.36	25.78
East	8	57.978	57 22.01	25.78
Flex.			− .01	−.05
			22.00	25.73
Sys. Red.		+.003	− .03	
1895.0	8	1 35 57.981	+4 57 21.97	
Obs. − B. J.		+.027	−0.26	
Obs. − A. E.		−.020	−0.27	
Obs. − C. T.		+.09	−0.3	
Obs. − N. A.		+.051	−0.27	
Obs. − 303.		+.030	−0.26	

ξ PISCIUM.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	1 48 7.143	+2 40 8.53
303.		7.129	8.85

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 2	E	0.922	39 32.67	25.73
3		.987	32.53	25.78
7		.924	32.89	25.43
8		.861	32.76	25.36
13		.979	32.76	25.18
14		.918	32.65	25.91
15		.960	33.07	——
21		.969	32.23	26.12
Dec. 6		.929	32.83	25.36
11		.933	32.91	25.47
19		.928	33.47	25.04
29		.932	33.50	24.86
1893.90	12	0.937	32.86	25.48
1894.				
Oct. 10	W	4.029	51.27	24.85
12		3.989	51.02	25.26
16		.031	51.14	25.08
22		.024	51.20	25.34
25		.979	51.12	24.85
29		.013	50.83	25.29
Nov. 5		.985	51.05	25.15
6		.031	51.48	24.61
1894.81	8	4.010	51.14	25.05
1895.				
Oct. 1	E	7.146	40 8.62	24.99
7		.158	8.58	25.72
9		.119	8.93	25.10
24		.122	8.71	25.28
1895.78	4	7.136	8.71	25.27
East	12	7.140	8.63	25.48
West	8	.111	9.02	25.05
East	4	.136	8.71	25.27
		7.130	8.77	25.30
Flex.			.00	−.06
			8.77	25.24
Sys. Red.		−.002	+ .03	
1895.0	24	1 48 7.128	+2 40 8.80	
Obs. − B. J.		−.015	+0.27	
Obs. − 303.		−.001	−0.05	

o CETI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	Var.	2 14 2.457	−3 27 17.05
C. T.		2.53	15.9
303.		2.469	15.95

Date.	Obs.	Mag.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
1893.					
Nov. 7	E	8	13 56.417	[46.81]	[22.34]
8		7½	.491	49.58	24.91
15		8	.448	49.50	——
1893.86	3, 2	7.8	56.452	49.54	24.91
1894.					
Oct. 10	W	8½	59.476	32.72	24.66
12		8¾	.481	33.27	25.37
16		8¾	.441	33.15	25.19
22		9	.465	32.87	25.23
25		8¾	.519	33.83	25.62
29		8½	.485	33.28	25.22
Nov. 5		8½	.524	33.11	25.13
6		8¾	.488	33.78	25.69
1894.81	8	8.7	59.485	33.25	25.26
East	3, 2		14 2.504	16.55	24.91
West	8		.511	16.76	25.26
			2.509	−16.72	25.22
Flex.				+ .01	−.06
				−16.71	25.16
Sys. Red.			+.007	+ .05	
1895.0	11, 10		2 14 2.516	−3 27 16.66	
Obs. − B. J.			+.059	+0.39	
Obs. − C. T.			−.01	−0.8	
Obs. − 303.			+.047	−0.71	

ξ 2 CETI.

Cat.	Mag.	R. A. 1895 0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	2 22 34.519	+7 59 21.44
A. E.		34.559	21.17
C. T.		34.46	21.5
N. A.		34.487	21.34

Date.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
1893.				
Nov. 2	E	28.149	58 48.51	25.97
3		.128	48.81	25.58
7		.138	48.92	25.48
8		.221	48.63	25.57
13		.135	48.56	25.46
14		.188	48.58	26.06
15		.155	48.07	——
21		.132	48.50	25.93
Dec. 6		.139	48.64	25.63
11		.191	48.73	25.73
19		.101	48.87	25.72
29		.202	49.33	25.11
1893.90	12	28.157	48.68	25.66
1894.				
Oct. 10	W	31.323	59 5.46	25.16
12		.315	5.19	25.59
16		.292	4.99	25.73
22		.321	5.29	25.65
Nov. 8		.317	5.05	25.65
14		.332	5.33	25.24
16		.326	5.25	25.65
19		.311	5.43	25.24
1894.83	8	31.317	5.25	25.49
1895.				
Oct. 1	E	34.539	20.96	25.56
7		.543	21.25	25.96
9		.530	20.91	26.03
24		.515	21.31	25.59
1895.78	4	34.532	21.11	25.78
East	12	34.523	21.27	25.66
West	8	.500	21.55	25.49
East	4	.532	21.11	25.78
		34.517	21.34	25.62
Flex.			- .01	−.05
			21.33	25.57
Sys. Red.		.000	- .02	
1895.0	24	2 22 34.517	+7 59 21.31	
Obs. − B. J.		−.002	−0.13	
Obs. − A. E.		−.042	+0.14	
Obs. − C. T.		+.06	-0.2	
Obs. − N. A.		+.030	−0.03	

δ CETI.

Cat.	Mag.	R. A. 1895.0	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.0	2 34 6.010	−0 7 29.17
A. E.		6.034	29.20
303.		5.985	28.21

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 2	E	33 59.873	59.70	24.80
3		.847	59.78	24.79
7		.881	59.82	24.84
8		.837	60.02	24.84
13		.845	59.66	24.30
14		.807	60.01	25.27
15		.863	60.60	——
21		.787	59.67	24.72
1893.86	8	59.842	59.91	24.79
1895.				
Oct. 1	E	34 5.969	28.67	24.58
7		6.000	28.60	25.20
9		.965	28.82	25.15
24		.953	28.83	25.12
1895.78	4	5.972	28.73	25.01
East	8	5.984	28.55	24.79
East	4	.972	28.73	25.01
		5.980	−28.61	24.87
Flex.			.00	−.06
			28.61	24.81
Sys. Red.		−.004	+.08	
1895.0	12	2 34 5.976	−0 7 28.53	
Obs. − B. J.		−.034	+0.64	
Obs. − A. E.		−.058	+0.67	
Obs. − 303.		−.009	−0.32	

η ERIDANI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	3.0	2 51 17.840	−9 18 58.43
303.		17.827	57.94

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 14	W	14.904	19 13.17	25.67
16		.945	12.92	25.75
19		.949	12.65	25.25
1894.88	3	14.933	12.91	25.56
1895.				
Oct. 1	E	17.790	18 58.89	25.54
7		.805	59.02	26.36
24		.821	59.00	26.03
Nov. 7		.862	58.78	25.91
1895.82	4	17.819	58.92	25.96
West	3	17.860	58.41	25.56
East	4	.819	58.92	25.96
		17.837	−58.70	25.79
Flex.			+ .02	−.07
			−58.68	25.72
Sys. Red.		.000	− .03	
1895.0	7	2 51 17.837	−9 18 58.71	
Obs. − B. J.		−.003	−0.28	
Obs. − 303.		+.010	−0.77	

α CETI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	2.3	2 56 47.354	+3 40 39.43
A. E.		47.393	39.34
C. T.		47.35	39.0
N. A.		47.346	39.41
303.		47.359	39.98

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 8	W	44.290	25.09	25.60
14		.278	25.49	25.07
16		.286	25.68	25.21
19		.247	25.24	25.42
1894.87	4	44.275	25.37	25.32
West	4	47.405	39.67	
Flex.			.00	−.06
			39.67	25.26
Sys. Red.		+.007	+.03	
1895.0	4	2 56 47.412	+3 40 39.70	
Obs. − B. J.		+.058	+0.27	
Obs. − A. E.		+.019	+0.36	
Obs. − C. T.		+.06	+0.7	
Obs. − N. A.		+.066	+0.29	
Obs. − 303.		+.053	−0.28	

δ TAURI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	3.6	3 19 9.725	+8 39 32.90
N. A.		9.679	32.67

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ″ ′ ″	φ ″
Dec. 6	E	3.265	7.40	25.17
9		.192	7.05	26.03
11		.244	7.22	25.54
19		.302	7.82	25.07
29		.257	7.90	24.84
1893.96	5	3.252	7.48	25.33
1894.				
Jan. 10	E	6.474	20.40	25.53
11		.459	20.19	25.68
12		.475	20.18	25.45
1894.04	3	6.469	20.26	25.55
Oct. 25	W	6.427	19.67	25.69
29		.442	19.59	25.92
Nov. 5		.455	19.48	26.11
6		.401	20.83	24.65
8		.532	19.80	25.79
14		.507	19.94	25.52
16		.485	20.32	25.47
19		.501	19.96	25.60
1894.86	8	6.469	19.95	25.59
1895.				
Oct. 1	E	9.737	32.70	25.28
7		.681	33.00	25.67
9		.696	32.49	25.91
24		.707	32.73	25.63
1895.78	4	9.705	32.73	25.62
East	8	9.695	33.20	25.41
West	8	.692	32.83	25.59
East	4	.705	32.73	25.62
		9.696	32.96	25.52
Flex.			−.01	−.05
			32.95	25.47
Sys. Red.		−.004	+.01	
1895.0	20	3 19 9.692	+8 39 32.96	
Obs. − B. J.		−.033	+0.06	
Obs. − N. A.		+.013	+0.29	

ε ERIDANI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	3.0	3 27 58.961	−9 48 50.68
A. E.		58.979	49.08
C. T.		59.05	52.0
N. A.		58.940	50.52
303.		58.981	49.76

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Dec. 9	E	53.366	49 14.70	25.24
1894.				
Jan. 10	E	56.155	2.54	25.40
11		.181	2.93	25.73
12		.166	2.15	24.71
1894.04	3	56.167	2.54	25.28
Oct. 25	W	56.214	3.21	25.50
29		.190	2.84	25.28
Nov. 5		.157	2.95	25.47
6		.180	2.43	24.84
1894.84	4	56.185	2.86	25.27
1895.				
Oct. 1	E	59.010	48 50.06	24.46
7		.022	49.93	25.02
9		.019	50.39	25.21
24		.048	50.27	25.05
Nov. 7		58.914	49.67	24.55
1895.79	5	59.003	50.06	24.86
East	4	58.996	50.13	25.27
West	4	59.008	50.50	25.27
East	5	.003	50.06	24.86
		59.002	−50.22	25.11
Flex.			+ .02	−.07
			−50.20	25.04
Sys. Red.		+.006	+ .07	
1895.0	13	3 27 59.008	−9 48 50.13	
Obs. − B. J.		+.047	+0.55	
Obs. − A. E.		+.029	−1.05	
Obs. − C. T.		−.04	+1.9	
Obs. − N. A.		+.068	+0.39	
Obs. − 303.		+.027	−0.37	

ν TAURI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	3 57 34.222	+5 41 51.55
303.		34.199	52.31

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Dec. 9	E	27.851	31.63	25.45
1894.				
Jan. 10	E	31.001	41.94	25.31
11		.004	41.34	25.85
12		.003	41.58	25.37
1894.04	3	31.003	41.62	25.51
Nov. 23	W	31.004	42.18	25.10
Dec. 13		30.961	42.93	24.41
1894.92	2	30.982	42.55	24.75
1895.				
Jan. 25	W	34.125	52.42	24.52
26		.154	52.10	25.31
1895.07	2	34.139	52.26	24.91
Nov. 7	E	34.190	52.00	25.11
13		.226	52.59	24.93
19		.252	51.64	25.65
Dec. 9		.193	51.58	25.62
1895.91	4	34.215	51.95	25.33
East	4	34.199	51.87	25.50
West	4	.154	52.50	24.83
East	4	.215	51.95	25.33
		34.189	52.11	25.22
Flex.			-.01	-.05
			52.10	25.17
Sys. Red.		-.005	+.08	
1895.0	12	3 57 34.184	+5 41 52.18	
Obs. - B. J.		-.038	+0.63	
Obs. - 303.		-.015	-.013	

o 1 ERIDANI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.4	4 6 44.389	-7 6 41.71
A. E.		44.386	41.98
N. A.		44.309	42.45
303.		44.362	41.68

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Dec. 6	E	38.540	7 0.87	25.39
11		.491	1.01	25.72
19		.527	1.14	25.98
29		.519	1.99	26.68
1893.96	4	38.519	1.25	25.94
1894.				
Nov. 8	W	41.349	6 51.03	25.28
14		.436	51.12	25.24
16		.395	51.68	26.13
19		.445	51.37	25.59
1894.87	4	41.406	51.30	25.56
East	4	44.370	42.05	25.94
West	4	.331	41.70	25.56
		44.350	-41.87	25.75
Flex.			+ .01	-.07
			-41.86	25.68
Sys. Red.		-.005	- .02	
1895.0	8	4 6 44.345	-7 6 41.88	
Obs. - B. J.		-.044	-0.17	
Obs. - A. E.		-.041	+0.10	
Obs. - N. A.		+.036	+0.57	
Obs. - 303.		-.017	-0.20	

ν ERIDANI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	3.3	4 31 4.271	−3 34 2.39
303.		4.290	2.24

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 23	W	1.337	10.58	26.51
Dec. 13		.338	10.44	26.47
1894.92	2	1.337	10.51	26.49
1895.				
Jan. 25	W	4.324	2.48	25.48
26		.324	2.56	26.03
1895.07	2	4.324	2.52	25.76
Nov. 7	E	4.283	2.75	25.92
13		.286	2.50	26.08
19		.320	2.65	26.00
Dec. 9		.388	2.30	25.56
1895.91	4	4.319	2.55	25.89
West	4	4.327	2.71	26.13
East	4	.319	2.55	25.89
		4.323	−2.63	26.01
Flex.			+ .01	−.07
			−2.62	25.94
Sys. Red.		+.008	− .03	
1895.0	8	4 31 4.331	−3 34 2.65	
Obs. − B. J.		+.060	−0.26	
Obs. − 303.		+.041	−0.41	

μ ERIDANI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	3.6	4 40 15.082	−3 26 50.52
N. A.		15.070	50.89
303.		15.091	50.17

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Dec. 9	E	9.114	27 4.26	26.00
1894.				
Jan. 10	E	12.111	26 57.37	25.92
12		.098	57.85	26.10
1894.03	2	12.104	57.61	26.01
East	3	15.104	−50.72	26.01
Flex.			+ .01	−.07
			−50.71	25.94
Sys. Red.		+.003	− .03	
1895.0	3	4 40 15.107	−3 26 50.74	
Obs. − B. J.		+.025	−0.22	
Obs. − N. A.		+.037	+0.15	
Obs. − 303.		+.016	−0.57	

π 5 ORIONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.0	4 48 46.906	+2 16 6.19
303.		46.889	7.16

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 1	E	43.720	0.39	25.67
2		.781	0.18	25.60
13		.753	0.32	25.57
14		.721	0.54	25.76
1894.11	4	43.744	0.36	25.65
Nov. 8	W	43.751	0.53	25.09
14		.720	0.43	25.06
16		.732	0.41	25.41
19		.736	0.20	25.39
1894.87	4	43.735	0.39	25.24
1895.				
Nov. 7	E	46.865	6.06	25.69
13		.841	5.97	26.19
19		.859	6.26	25.67
Dec. 9		.918	6.04	25.80
1895.91	4	46.871	6.08	25.84
East	4	46.866	6.49	25.65
West	4	.857	6.52	25.24
East	4	.871	6.08	25.84
		46.865	6.36	25.58
Flex.			.00	−.06
			6.36	25.52
Sys. Red.		−.006	+.02	
1895.0	12	4 48 46.859	+2 16 6.38	
Obs. − B. J.		−.047	+0.19	
Obs. − 303.		−.030	−0.78	

β ERIDANI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	3.0	5 2 41.246	−5 13 20.50
A. E.		41.258	20.48
303.		41.244	20.44

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Dec. 6	E	35.348	30.38	25.50
11		.386	30.53	25.84
19		.337	31.17	26.61
29		.389	30.74	26.03
1893.96	4	35.365	30.70	25.99
1894.				
Feb. 1	E	38.268	25.56	26.16
2		.274	25.80	26.12
13		.311	25.83	26.26
14		.328	25.31	26.15
1894.11	4	38.295	25.62	26.17
Nov. 23	W	38.324	25.68	26.20
Dec. 13		.321	25.86	26.45
1894.92	2	38.322	25.77	26.32
1895.				
Jan. 25	W	41.304	21.08	25.97
26		.229	21.05	26.41
1895.07	2	41.267	21.06	26.19
Nov. 7	E	41.283	21.45	26.51
13		.257	20.97	26.44
19		.265	21.02	26.26
Dec. 9		.224	21.29	26.44
1895.91	4	41.257	21.18	26.41
East	8	41.251	20.80	26.08
West	4	.268	20.97	26.25
East	4	.257	21.18	26.41
		41.257	−20.94	26.20
Flex.			+ .01	−.07
			−20.93	26.13
Sys. Red.		+.002	− .06	
1895.0	16	5 2 41.259	−5 13 20.99	
Obs. − B. J.		+.013	−0.49	
Obs. − A. E.		+.001	−.051	
Obs. − 303.		+.015	−0.55	

β ORIONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	1	5 9 29.460	−8 19 23.76
A. E.		29.484	23.48
C. T.		29.47	23.8
N. A.		29.458	23.68
303.		29.422	22.68

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Dec. 6	E	23.695	32.36	25.24
11		.683	32.83	25.90
19		.638	32.00	25.20
29		.680	33.51	26.56
1893.96	4	23.674	32.67	25.72
East	4	29.435	−23.88	
Flex.			+ .01	−.07
			−23.87	25.65
Sys. Red.		−.004	− .02	
1895.0	4	5 9 29.431	−8 19 23.89	
Obs. − B. J.		−.029	−0.13	
Obs. − A. E.		−.053	−0.41	
Obs. − C. T.		−.04	−0.1	
Obs. − N. A.		−.027	−0.21	
Obs. − 303.		+.009	−1.21	

γ ORIONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	2.0	5 19 29.900	+6 15 15.21
C. T.		30.01	15.6

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Dec. 6	E	23.483	8.68	24.93
11		.499	8.40	25.40
19		.550	7.91	26.02
29		.466	8.61	25.17
1893.96	4	23.499	8.40	25.38
1894.				
Feb. 1	E	26.679	12.16	25.54
2		.698	11.74	25.68
13		.717	12.12	25.41
14		.710	12.44	25.50
1894.11	4	26.701	12.12	25.53
1895.				
Nov. 7	E	30.003	14.63	26.14
13		29.953	15.53	25.65
19		.987	15.56	25.39
Dec. 9		.876	15.49	25.37
1895.91	4	29.955	15.30	25.64
East	8	29.923	15.53	25.46
East	4	.955	15.30	25.64
		29.934	15.45	25.52
Flex.			−.01	−.05
			15.44	25.47
Sys. Red.		+.005	+.03	
1895.0	12	5 19 29.939	+6 15 15.47	
Obs. − B. J.		+.039	+0.26	
Obs. − C. T.		−.07	−0.1	

ε ORIONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	2.0	5 30 53.066	−1 16 9.22
A. E.		53.105	9.24
C. T.		53.11	9.8
N. A.		53.062	8.96
303.		53.084	8.56

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 8	W	50.066	11.98	25.77
14		.088	12.03	25.69
16		.053	11.79	25.78
19		.010	12.19	25.95
1894.87	4	50.054	12.00	25.80
1895.				
Jan. 28	W	53.088	9.58	26.44
29		.066	9.47	26.69
30		.080	8.62	25.47
31		.088	9.44	26.36
1895.08	4	53.080	9.28	26.24
West	8	53.087	−9.37	26.02
Flex.			+.01	−.06
			−9.36	25.96
Sys. Red.		+.003	−.02	
1895.0	8	5 30 53.090	−1 16 9.38	
Obs. − B. J.		+.024	−0.16	
Obs. − A. E.		−.015	−0.14	
Obs. − C. T.		−.02	+0.4	
Obs. − N. A.		+.028	−0.42	
Obs. − 303.		+.006	−0.82	

κ ORIONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	2.6	5 42 46.537	−9 42 25.86
A. E.		46.565	25.86
N. A.		46.545	26.32
303.		46.540	25.22

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Dec. 9	E	40.918	29.43	26.49
1894.				
Jan. 10	E	43.801	28.40	27.03
11		.723	28.08	26.65
12		.749	28.52	26.76
Feb. 1		.740	28.00	26.63
2		.717	27.66	26.01
13		.709	27.62	26.08
14		.712	28.01	26.88
1894.08	7	43.736	28.04	26.58
Nov. 8	W	43.737	27.21	25.40
14		.727	27.56	25.62
16		.723	27.53	25.92
19		.751	27.11	25.27
23		.713	27.71	26.30
Dec. 13		.731	27.80	26.42
1894.89	6	43.730	27.49	25.82
1895.				
Jan. 25	W	46.607	26.30	25.83
26		.611	26.04	26.04
28		.547	26.05	26.27
29		.631	25.75	26.31
30		.561	25.82	26.03
31		.543	25.93	26.21
1895.08	6	46.583	25.98	26.11
East	8	46.581	26.51	26.57
West	12	.577	25.98	25.97
		46.579	−26.19	26.21
Flex.			+ .01	−.07
			−26.18	26.14
Sys. Red.		+.006	− .05	
1895.0	20	5 42 46.585	−9 42 26.23	
Obs. − B. J.		+.048	−0.37	
Obs. − A. E.		+.020	−0.37	
Obs. − N. A.		+.040	+0.09	
Obs. − 303.		+.045	−1.01	

ν ORIONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.6	6 1 34.605	+14 46 50.71
A. E.		34.681	50.36
C. T.		34.63	50.8
N. A.		34.559	50.63

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Dec. 9	E	27.744	50.50	26.44
1894.				
Jan. 10	E	31.176	50.52	26.24
11		.208	50.70	26.00
12		.144	50.49	25.97
1894.03	3	31.176	50.57	26.07
Nov. 8	W	31.169	50.61	25.81
14		.126	50.48	25.81
16		.176	50.07	26.55
19		.175	50.34	26.05
1894.87	4	31.161	50.38	26.06
1895.				
Jan. 28	W	34.581	49.86	26.93
29		.620	50.50	26.63
30		.572	50.21	26.57
31		.558	50.12	26.73
1895.08	4	34.583	50.17	26.71
East	4	34.599	50.37	26.16
West	8	.584	50.20	26.38
		34.589	50.26	26.31
Flex.			−.02	−.04
			50.24	26.27
Sys. Red.		−.002	−.07	
1895.0	12	6 1 34.587	+14 46 50.17	
Obs. − B. J.		−.018	−0.54	
Obs. − A. E.		−.094	−0.19	
Obs. − C. T.		−.04	−0.6	
Obs. − N. A.		+.028	−0.46	

8 MONOCEROTIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.7	6 18 12.278	+4 38 45.04

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Dec. 9	E	5.847	48.21	25.92
1894.				
Jan. 10	E	9.022	46.63	25.89
11		.066	47.35	25.11
12		.082	47.24	25.60
Feb. 26		.060	46.80	25.37
27		.061	47.01	25.53
28		.035	46.90	25.47
Mar. 12		.035	46.56	25.64
1894.11	7	9.052	46.93	25.52
Nov. 23	W	9.052	46.78	25.76
Dec. 13		.065	47.03	25.58
1894.92	2	9.058	46.90	25.67
1895.				
Jan. 25	W	12.214	45.09	25.34
26		.273	45.22	25.68
Feb. 1		.277	45.73	24.97
2		.254	45.51	25.53
4		.256	45.53	25.50
5		.280	45.55	25.37
1895.09	6	12.259	45.44	25.40
East	8	12.228	45.31	25.57
West	8	.254	45.41	25.47
		12.241	45.36	25.52
Flex.			−.01	−.05
			45.35	25.47
Sys. Red.		−.005	+.04	
1895.0	16	6 18 12.236	+4 38 45.39	
Obs. − B. J.		−.042	+0.35	

S MONOCEROTIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	Var.	6 35 11.742	+9 59 33.16

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 1	E	8.441	36.44	25.79
2		.378	36.65	25.30
13		.367	36.49	25.57
14		.405	35.94	26.53
1894.11	4	8.398	36.38	25.80
1895.				
Jan. 28	W	11.684	33.32	25.92
29		.706	33.45	26.13
30		.709	32.88	26.35
31		.746	32.73	26.57
Feb. 1		.747	33.37	25.45
2		.731	33.49	25.67
4		.692	33.06	26.09
5		.704	33.09	25.95
1895.09	8	11.715	33.17	26.02
Nov. 7	E	11.705	33.57	25.15
13		.719	32.98	26.15
19		.672	33.43	25.47
Dec. 9		.734	33.24	25.57
1895.91	4	11.707	33.30	25.58
1896.				
Jan. 2	E	15.033	30.03	26.16
6		.009	29.34	27.00
Feb. 7		.030	30.80	25.33
12		14.980	30.62	25.95
1896.06	4	15.013	30.20	26.11
East	4	11.703	33.31	25.80
West	8	.715	33.17	26.02
East	8	.708	33.27	25.84
		11.710	33.24	25.90
Flex.			−.01	−.05
			33.23	25.85
Sys. Red.		−.005	+.01	
1895.0	20	6 35 11.705	+9 59 33.24	
Obs. − B. J.		−.037	+0.08	

18 MONOCEROTIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B J.	5.0	6 42 23.157	+2 31 36.06
303.		23.145	36.81

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 1	E	20.007	40.50	25.26
2		19.987	40.48	25.00
13		.002	40.40	25.19
14		.006	40.35	25.65
26		.032	40.50	24.81
27		.017	40.38	25.30
28		.022	40.17	25.34
Mar. 12		.050	40.33	26.01
14		.015	39.96	25.74
22		.031	40.39	25.34
23		.028	40.56	24.83
1894.16	11	20.018	40.37	25.32
Nov. 23	W	20.003	40.19	25.49
Dec. 13		.045	39.82	25.93
1894.92	2	20.024	40.00	25.71
1895.				
Jan. 25	W	23.158	36.81	24.64
26		.175	36.84	25.08
28		.169	37.24	24.90
29		.110	36.78	25.70
30		.145	36.29	25.84
31		.137	37.19	25.01
Feb. 1		.137	37.09	24.63
2		.187	36.90	25.16
4		.191	36.71	25.34
5		.189	36.85	25.09
1895.09	10	23.160	36.87	25.14
Nov. 7	E	23.152	37.10	24.52
13		.169	36.47	25.56
19		.119	36.57	25.23
Dec. 9		.120	35.98	25.73
1895.91	4	23.140	36.53	25.26
1896.				
Jan. 2	E	26.283	32.66	25.80
6		.256	32.94	25.67
Feb. 7		.218	33.01	25.39
12		.298	32.99	25.85
1896.06	4	26.264	32.90	25.68
East	11	23.147	36.67	25.32
West	12	.159	36.77	25.24
East	8	.138	36.56	25.47
		23.149	36.68	25.33
Flex.			.00	−.06
			36.68	25.27
Sys. Red.		−.001	+.09	
1895.0	31	6 42 23.148	+2 31 36.77	
Obs. − B. J.		−.009	+0.71	
Obs. − 303.		+.003	−0.04	

λ GEMINORUM.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	3.8	7 12 3.537	+16 43 46.54

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 26	E	0.020	52.18	26.14
27		.077	51.88	26.81
28		.044	52.48	26.04
Mar. 12		.042	52.55	25.80
14		.081	52.08	26.63
21		.020	52.06	26.40
22		.089	51.58	27.16
23		.083	51.91	26.49
1894.19	8	0.057	52.09	26.43
Nov. 23	W	0.082	52.58	26.11
Dec. 13		.057	52.12	26.64
1894.92	2	0.069	52.35	26.38
1895.				
Jan. 25	W	3.502	46.00	25.93
26		.487	45.92	26.48
Feb. 18		.467	46.70	25.74
20		.452	46.08	26.58
27		.435	46.46	26.29
28		.489	46.69	26.06
1895.12	6	3.472	46.31	26.18
Nov. 7	E	3.529	46.01	26.09
13		.532	45.74	26.77
19		.507	46.04	26.23
Dec. 9		.536	46.25	25.94
1895.91	4	3.526	46.01	26.26
East	8	3.508	45.86	26.43
West	8	.484	46.26	26.23
East	4	.526	46.01	26.26
		3.502	46.05	26.32
Flex.			−.02	−.04
			46.03	26.28
Sys. Red.		−.005	−.07	
1895.0	20	7 12 3.497	+16 43 45.96	
Obs. − B. J.		−.040	−0.58	

β CANIS MINORIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.0	7 21 27.406	+8 30 2.55
A. E.		27.452	2.06
C. T.		27.40	2.7
N. A.		27.374	2.11

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Mar. 14	E	24.128	9.44	26.06
21		.139	10.10	25.15
22		.116	9.68	25.85
23		.117	9.22	25.97
1894.22	4	24.125	9.61	25.76
1895.				
Feb. 1	W	27.409	2.22	25.99
2		.377	2.26	26.29
4		.412	2.43	26.11
5		.376	2.29	26.14
1895.09	4	27.394	2.30	26.13
East	4	27.381	2.60	25.76
West	4	.394	2.30	26.13
		27.387	2.45	25.94
Flex.			−.01	−.05
			2.44	25.89
Sys. Red.		−.003	−.02	
1895.0	8	7 21 27.384	+8 30 2.42	
Obs. − B. J.		−.022	−0.13	
Obs. − A. E.		−.068	+0.36	
Obs. − C. T.		−.02	−0.3	
Obs. − N. A.		+.010	+0.31	

25 MONOCEROTIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	5.3	7 32 3.341	−3 52 36.43
303.		3.457	35.78

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 1	E	0.482	28.80	26.17
2		.427	28.71	25.80
13		.418	28.92	26.12
14		.464	29.16	26.77
26		.454	28.89	25.81
27		.456	28.74	26.03
28		.494	29.57	26.69
Mar. 12		.501	28.49	25.44
1894.14	8	0.462	28.91	26.10
1895.				
Feb. 18	W	3.424	35.93	25.40
20		.473	36.28	25.97
27		.392	36.04	25.82
28		.456	35.96	25.74
1895.15	4	3.436	36.05	25.73
1896.				
Jan. 2	E	6.337	44.01	25.87
6		.413	44.25	26.26
Feb. 7		.439	44.14	25.94
12		.425	44.70	26.94
1896.06	4	6.404	44.27	26.25
East	8	3.443	36.71	26.10
West	4	.436	36.05	25.73
East	4	.423	36.46	26.25
		3.436	−36.48	26.04
Flex.			+ .01	−.07
			−36.47	25.97
Sys. Red.		+.014	− .01	
1895.0	16	7 32 3.450	−3 52 36.48	
Obs. − B. J.		+.109	−0.05	
Obs. − 303.		−.007	−0.70	

β CANCRI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.6	8 10 49.261	+9 30 32.15
A. E.		49.272	31.74
C. T.		49.29	32.1
N. A.		49.226	31.82

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 18	W	49.242	32.45	25.60
20		.219	31.79	26.48
27		.284	32.19	26.17
28		.202	31.88	26.48
1895.15	4	49.237	32.08	26 18
Flex.			−.01	−.05
			32.07	26.13
Sys. Red.		−.003	−.01	
1895.0	4	8 10 49.234	+9 30 32.06	
Obs. − B. J.		−.027	−0.09	
Obs. − A. E.		−.038	+0.32	
Obs. − C. T.		−.06	0.0	
Obs. − N. A.		+.008	+0.24	

BRADLEY 1197.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.6	8 20 24.809	−3 33 50.31
A. E.		24.822	50.31
303.		24.830	49.89

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 1	E	21.756	39.60	26.81
2		.831	39.30	26.23
13		.824	39.42	26.46
14		.748	39.26	26.71
Mar. 14		.851	39.02	26.17
21		[.955]	39.04	25.94
22		.804	38.96	26.14
23		.805	39.79	26.63
1894.16	7, 8	21.803	39.30	26.39
1895.				
Jan. 28	W	24.848	50.73	26.50
29		.846	50.99	27.10
31		.854	50.87	26.70
Feb. 1		.824	51.22	26.57
2		.861	51.22	26.91
4		.852	50.91	26.59
5		.837	50.98	26.55
18		.880	50.53	26.12
20		.821	50.84	26.65
27		.815	50.78	26.68
28		.899	50.72	26.64
Mar. 4		.848	50.17	25.54
1895.12	12	24.849	50.83	26.55
1896.				
Jan. 2	E	27.802	34 2.06	26.32
6		.840	2.16	26.57
Feb. 7		.806	2.18	26.38
12		.810	1.96	26.60
1896.06	4	27.814	2.09	26.47
East	7, 8	24.802	50.82	26.39
West	12	.849	50.83	26.55
East	4	.816	50.56	26.47
		24.828	−50.78	26.48
Flex.			+ .01	−.07
			−50.77	26.41
Sys. Red.		+.003	− .07	
1895.0	23, 24	8 20 24.831	−3 33 50.84	
Obs. − B. J.		+.022	−0.53	
Obs.—A. E.		+.009	−0.53	
Obs.—303.		+.001	−0.95	

ε HYDRAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.3	8 41 12.950	+6 48 14.29
A. E.		12.977	13.80
C. T.		12.99	14.3
N. A.		12.933	13.92

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Jan. 28	W	12.946	14.77	25.60
29		.882	14.33	26.38
31		.919	14.13	26.30
1895.08	3	12.916	14.41	26.09
1896.				
Jan. 2	E	16.134	0.98	26.41
6		.075	1.09	26.45
Feb. 7		.114	0.88	26.45
12		.135	1.42	26.35
1896.06	4	16.114	1.09	26.41
West	3	12.916	14.41	26.09
East	4	.934	14.09	26.41
		12.926	14.23	26.27
Flex.			.00	−.05
			14.23	26.22
Sys. Red.		−.003	−.01	
1895.0	7	8 41 12.923	+6 48 14.22	
Obs. − B. J.		−.027	−0.07	
Obs. − A. E.		−.054	+0.42	
Obs. − C. T.		−.07	−0.1	
Obs. − N. A.		−.010	+0.30	

α CANCRI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	8 52 44.677	+12 15 50.49
C. T.		44.66	50.3
N. A.		44.708	50.21

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 26	E	41.430	16 4.06	25.73
27		.338	4.28	25.88
28		.413	3.81	26.18
Mar. 12		.383	3.91	25.91
21		.434	4.09	25.70
22		.429	3.44	26.77
23		.414	3.74	26.13
1894.19	7	41.406	3.90	26.04
1895.				
Jan. 30	W	44.718	15 50.29	26.27
31		.692	51.35	25.28
Mar. 4		.658	50.71	25.46
1895.11	3	44.689	50.78	25.67
East	7	44.692	50.15	26.04
West	3	.689	50.78	25.67
		44.691	50.34	25.93
Flex.			−.02	−.04
			50.32	25.89
Sys. Red.		+.002	−.02	
1895.0	10	8 52 44.693	+12 15 50.30	
Obs. − B. J.		+.016	−0.19	
Obs. − C. T.		+.03	0.0	
Obs. − N. A.		−.015	+0.09	

9 HYDRAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	9 8 54.097	+2 45 25.43
A. E.		54.139	25.27
303.		54.082	26.14

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 26	E	50.996	40.54	25.47
27		.984	40.39	25.99
28		.965	41.09	25.12
Mar. 12		.922	40.78	25.26
1894.17	4	50.967	40.70	25.46
1895.				
Jan. 30	W	54.095	25.57	25.93
Feb. 1		.098	25.63	25.46
2		.119	25.59	25.84
4		.100	25.62	25.80
5		.121	25.60	25.71
Mar. 4		.115	25.65	25.46
Apr. 2		.056	25.69	25.45
5		.055	25.38	26.19
8		.113	25.70	25.07
1895.16	9	54.097	25.60	25.66
1896.				
Jan. 2	E	57.227	10.47	26.03
6		.215	10.81	25.84
Feb. 7		.219	10.53	25.91
12		.234	10.90	25.98
1896.06	4	57.224	10.68	25.94
East	4	54.092	25.67	25.46
West	9	.097	25.60	25.66
East	4	.100	25.71	25.94
		54.097	25.64	25.68
Flex.			.00	−.06
			25.64	25.62
Sys. Red.		.000	+.03	
1895.0	17	9 8 54.097	+2 45 25.67	
Obs. − B. J.		.000	+0.24	
Obs. − A. E.		−.042	+0.40	
Obs. − 303.		+.015	−0.47	

o LEONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.6	9 35 32.831	+10 22 11.73
A. E.		32.816	11.45
C. T.		32.74	11.8
N. A.		32.797	11.32

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 26	E	29.608	27.82	25.68
28		.614	28.21	25.49
Mar. 12		.580	27.62	25.91
Apr. 2		.619	27.81	25.75
3		.583	27.36	25.99
4		.612	27.47	26.07
5		.587	27.68	26.19
1894.22	7	29.600	27.71	25.87
1895.				
Feb. 1	W	32.835	10.96	26.43
2		.785	10.87	26.86
4		.837	11.23	26.49
5		.819	11.27	26.34
18		.775	11.50	26.13
20		.762	11.55	26.30
27		.811	11.89	26.05
28		.815	11.45	26.49
Mar. 4		.821	11.66	25.75
Apr. 2		.841	11.25	26.19
5		.850	11.22	26.65
8		.805	10.97	26.10
1895.16	12	32.813	11.32	26.31
1896.				
Jan. 2	E	36.008	21 55.49	26.12
6		.024	55.69	26.07
Feb. 7		.054	55.18	26.37
12		.027	54.94	27.05
1896.06	4	36.028	55.32	26.40
East	7	32.807	11.49	25.87
West	12	.813	11.32	26.31
East	4	.822	11.54	26.40
		32.813	11.41	26.19
Flex.			−.01	−.05
			11.40	26.14
Sys. Red.		−.003	−.05	
1895.0	23	9 35 32.810	+10 22 11.35	
Obs. − B. J.		−.021	−0.38	
Obs. − A. E.		−.006	−0.10	
Obs. − C. T.		+.07	−0.4	
Obs. − N. A.		+.013	+0.03	

6 SEXTANTIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	6.1	9 45 56.602	−3 45 4.92
303.		56.566	4.39

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 2	E	53.589	44 48.43	25.85
3		.588	48.63	25.84
4		.540	48.65	26.05
5		.567	48.61	26.34
1894.26	4	53.571	48.58	26.02
1895.				
Feb. 18	W	56.562	45 5.35	26.33
20		.596	4.94	26.14
27		.624	4.78	26.07
28		.574	4.89	26.18
Mar. 4		.564	5.30	26.06
Apr. 10		.552	5.45	26.12
11		.582	4.69	25.41
15		.561	5.26	25.86
17		.630	5.45	26.14
1895.21	9	56.583	5.12	26.03
1896.				
Jan. 2	E	59.645	21.67	26.12
6		.634	21.51	26.11
Feb. 7		.594	22.17	26.56
12		.563	22.28	27.11
1896.06	4	59.609	21.91	26.47
East	4	56.596	5.31	26.02
West	9	.583	5.12	26.03
East	4	.585	5.18	26.47
		56.587	−5.18	26.14
Flex.			+ .01	−.07
			−5.17	26.07
Sys. Red.		−.002	− .04	
1895.0	17	9 45 56.585	−3 45 5.21	
Obs. − B. J.		−.017	−0.29	
Obs. − 303.		+.019	−0.82	

π LEONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	5.0	9 54 39.887	+8 32 52.41
A. E.		39.899	52.30
C. T.		39.93	52.0
N. A.		39.872	51.84

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 26	E	36.698	33 9.73	25.37
28		.685	9.64	25.66
Mar. 12		.770	9.42	25.71
14		.766	10.03	25.46
21		.653	9.76	25.48
22		.686	10.23	25.29
23		.748	10.12	25.06
Apr. 2		.716	9.91	25.25
3		.709	9.52	25.43
4		[.829]	9.89	25.25
5		.777	9.25	26.22
1894.22	10, 11	36.721	9.77	25.47
1895.				
Feb. 1	W	39.888	32 52.30	25.77
2		.896	52.65	25.76
4		.872	52.42	25.98
5		.889	52.38	25.91
Apr. 2		.903	52.82	25.30
5		.898	52.69	25.86
8		.897	53.00	24.75
10		.895	52.46	25.54
11		.868	52.54	25.51
15		.930	52.46	25.47
17		.897	52.49	25.53
1895.21	11	39.894	52.56	25.58
1896.				
Mar. 10	E	43.033	34.75	26.22
12		.079	35.58	25.26
Apr. 2		.032	34.96	25.94
May 7		.029	34.75	26.07
1896.25	4	43.043	35.01	25.87
East	10, 11	39.894	52.63	25.47
West	11	.894	52.56	25.58
East	4	.870	52.15	25.87
		39.890	52.52	25.57
Flex.			−.01	−.05
			52.51	25.52
Sys. Red.		.000	+0.01	
1895.0	25, 26	9 54 39.890	+8 32 52.52	
Obs. − B. J.		+.003	+0.11	
Obs. − A. E.		−.009	+0.22	
Obs. − C. T.		−.04	+0.5	
Obs. − N. A.		+.018	+0.68	

1 LEONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	5.1	10 43 44.311	+11 6 2.50
A. E.		44.336	2.54
C. T.		44.26	3.1
N. A.		44.265	2.58

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Mar. 14	E	41.098	21.82	25.59
21		.128	21.93	25.23
22		.108	21.92	25.52
23		.107	22.13	24.97
Apr. 9		.137	21.12	25.93
16		.092	21.37	25.30
17		.106	21.43	25.71
18		.108	21.42	25.04
1894.25	8	41.110	21.64	25.41
1895.				
Feb. 18	W	44.300	2.34	26.06
20		.310	2.87	25.75
27		.273	2.58	26.13
28		.237	2.97	25.74
Apr. 10		.311	2.57	25.52
11		.334	2.62	25.52
15		.309	2.58	25.44
17		.279	2.45	25.66
1895.22	8	44.294	2.62	25.73
1896.				
Mar. 10	E	47.491	5 43.53	25.70
12		.441	43.26	25.84
Apr. 2		.431	43.47	25.69
May 7		.503	43.41	25.67
1896.25	4	47.466	43.42	25.72
East	8	44.267	6 2.67	25.41
West	8	.294	2.62	25.73
East	4	.310	2.39	25.72
		44.286	2.59	25.60
Flex.			−.01	−.04
			2.58	25.56
Sys. Red.		−.004	+.01	
1895.0	20	10 43 44.282	+11 6 2.59	
Obs. − B. J.		−.029	+0.09	
Obs. − A. E.		−.054	+0.05	
Obs. − C. T.		+.02	−0.5	
Obs. − N. A.		+.017	+0.01	

χ LEONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.8	10 59 36.025	+7 54 13.27
C. T.		36.02	12.5
N. A.		36.047	12.79

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Mar. 14	E	32.927	32.69	25.90
21		.942	32.56	25.78
22		.957	32.87	25.69
23		.961	32.36	24.92
Apr. 9		.929	32.38	25.85
16		.995	32.83	25.02
17		.939	32.79	25.53
18		.964	32.17	25.47
1894.25	8	32.952	32.71	25.52
1895.				
Feb. 18	W	36.068	13.31	25.86
20		.084	14.30	25.09
27		.086	13.04	26.44
28		.035	13.06	26.42
Mar. 4		.066	13.13	25.82
Apr. 2		.093	12.90	26.08
5		.062	12.90	26.51
8		.060	13.12	25.49
1895.19	8	36.069	13.22	25.96
1896.				
Mar. 10	E	39.158	53 53.69	25.89
12		.152	53.72	25.73
Apr. 2		.195	53.55	25.96
May 7		.143	54.21	25.22
11		.144	54.00	25.79
1896.27	5	39.158	53.83	25.72
East	8	36.048	54 13.33	25.52
West	8	.069	13.22	25.96
East	5	.063	13.22	25.72
		36.059	13.26	25.73
Flex.			−.01	−.05
			13.25	25.68
Sys. Red.		+.005	.00	
1895.0	21	10 59 36.064	+7 54 13.25	
Obs. − B. J.		+.039	−0.02	
Obs. − C. T.		+.04	+0.7	
Obs. − N. A.		+.017	+0.46	

σ LEONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.1	11 15 43.347	+6 36 17.02

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 2	E	40.243	37.11	25.20
3		.235	37.09	25.01
4		.229	37.01	25.28
5		.225	37.30	25.32
9		.202	37.26	25.02
16		.271	37.29	24.61
17		.247	37.07	25.30
18		.272	36.80	24.89
1894.27	8	40.240	37.12	25.08
1895.				
Mar. 4	W	43.303	16.95	25.75
Apr. 2		.277	17.08	25.65
5		.318	17.22	25.94
8		.323	17.64	24.72
1895.24	4	43.305	17.22	25.51
1896.				
Mar. 10	E	46.423	35 57.35	25.69
12		.418	56.94	25.97
Apr. 2		.430	57.72	25.25
7		.427	56.45	26.44
11		.447	57.52	25.73
1896.27	5	46.429	57.20	25.82
East	8	43.335	36 17.44	25.08
West	4	.305	17.22	25.51
East	5	.334	16.88	25.82
		43.327	17.24	25.40
Flex.			−.01	−.05
			17.23	25.35
Sys. Red.		−.003	+.03	
1895.0	17	11 15 43.324	+6 36 17.26	
Obs. − B. J.		−.023	+0.24	

υ LEONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.8	11 31 34.328	−0 14 38.62
A. E.		34.359	38.91
C. T.		34.30	39.4
N. A.		34.310	38.77

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 9	E	31.310	19.21	26.02
16		.239	19.02	25.45
17		.324	18.76	25.66
18		.272	18.69	24.91
1894.29	4	31.286	18.92	25.51
1895.				
Apr. 10	W	34.397	38.96	25.93
11		.377	38.80	25.82
15		.378	38.84	25.74
17		.334	38.77	25.76
1895.28	4	34.372	38.84	25.81
East	4	34.356	38.77	25.51
West	4	.372	38.84	25.81
		34.364	38.80	25.66
Flex.			.00	−.06
			−38.80	25.60
Sys. Red.		+.005	− .03	
1895.0	8	11 31 34.369	−0 14 38.83	
Obs. − B. J.		+.041	−0.21	
Obs. − A. E.		+.010	+0.08	
Obs. − C. T.		+.07	+0.6	
Obs. − N. A.		+.059	−0.06	

β VIRGINIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.3	11 45 13.510	+2 21 23.00
C. T.		13.53	22.2
303.		13.516	23.48

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 2	E	10.395	42.89	25.99
3		.418	43.65	25.02
4		.404	43.43	25.43
5		.387	43.09	26.10
1894.26	4	10.401	43.26	25.64
1895.				
Apr. 18	W	13.531	23.08	25.20
22		.487	23.65	24.44
May 7		.541	22.88	25.82
1895.32	3	13.520	23.20	25.15
East	4	13.525	22.99	25.64
West	3	.520	23.20	25.15
		13.523	23.08	25.43
Flex.			.00	−.06
			23.08	25.37
Sys. Red.		+.002	+.01	
1895.0	7	11 45 13.525	+2 21 23.09	
Obs. − B. J.		+.015	+0.09	
Obs. − C. T.		−.01	+0.9	
Obs. − 303.		+.009	−0.39	

o VIRGINIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	11 59 51.639	+9 18 58.10
A. E.		51.627	58.06
C. T.		51.67	57.7

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Mar. 4	W	51.607	58.18	25.60
Apr. 2		.616	57.82	25.99
5		.649	57.80	26.44
8		.611	57.40	26.04
10		.644	57.91	25.78
11		.629	57.53	26.21
15		.642	57.94	25.68
17		.657	57.75	25.96
18		.646	57.99	25.39
22		.589	57.80	25.39
May 7		.622	58.06	25.74
8		.651	57.97	25.72
1895.28	12	51.630	57.85	25.83
1896.				
Mar. 10	E	54.669	38.37	25.43
12		.680	38.10	25.57
Apr. 2		.694	38.42	25.31
May 7		.704	38.80	24.85
11		.623	38.55	25.46
1896.27	5	54.674	38.45	25.32
West	12	51.630	57.85	25.83
East	5	.618	58.45	25.32
		51.626	58.03	25.68
Flex.			−.01	−.05
			58.02	25.63
Sys. Red.		−.002	−.01	
1895.0	17	11 59 51.624	+9 18 58.01	
Obs. − B. J.		−.015	−0.09	
Obs. − A. E.		−.003	−0.05	
Obs. − C. T.		−.05	+0.3	

η VIRGINIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.3	12 14 32.000	−0 4 60.25
A. E.		32.043	60.12
C. T.		31.98	60.0
N. A.		31.971	59.73
303.		32.000	59.78

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 3	E	28.973	39.37	24.55
4		.954	39.64	25.01
5		.947	39.90	25.60
1894.26	3	28.958	39.64	25.05
1895.				
Mar. 4	W	32.016	60.12	25.55
Apr. 2		.031	59.66	25.12
5		31.976	59.84	25.73
8		.025	59.80	24.89
18		.002	60.02	25.05
22		.020	60.17	25.01
May 7		.955	59.60	25.05
8		.971	59.49	24.83
1895.28	8	31.999	59.84	25.15
1896.				
Mar. 10	E	35.079	5 20.18	25.60
12		.070	19.86	25.15
May 7		.090	19.26	24.53
11		.070	20.01	25.64
1896.27	4	35.077	19.83	25.23
East	3	32.225	4 59.67	25.05
West	8	31.999	59.84	25.15
East	4	32.009	59.80	25.23
		32.007	59.79	25.15
Flex.			.00	−.06
			−59.79	25.09
Sys. Red.		+.001	+.07	
1895.0	15	12 14 32.008	−0 4 59.72	
Obs. − B. J.		+.008	+0.53	
Obs. − A. E.		−.035	+0.40	
Obs. − C. T.		+.03	+0.3	
Obs. − N. A.		+.037	+0.01	
Obs. − 303.		+.008	+0.06	

γ VIRGINIS (Mean).

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3	12 36 20.365	−0 52 24.93
A. E.	m	20.402	25.45
C. T.	pr.	(20.50)	(30.0)
N. A.	pr.	(20.328)	(24.61)

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 9	E	17.353	5.19	25.63
16		.311	5.34	25.40
17		.298	4.83	25.36
18		.290	4.91	24.76
1894.29	4	17.313	5.07	25.29
East	4	20.351	24.86	25.29
Flex.			.00	−.06
			−24.86	25.23
Sys. Red.		−.002	+.01	
1895.0	4	12 36 20.349	−0 52 24.85	
Obs. − B. J.		−.016	+0.08	
Obs. − A. E.		−.053	+0.60	
Obs. − C. T.		(−.15)	(+5.1)	
Obs. − N. A.		(+.021)	(−0.26)	
N. A.		Δ α +.189	Δ δ −5.05	

δ VIRGINIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.0	12 50 18.803	+3 58 5.19
C. T.		18.85	4.4
N. A.		18.803	4.89
303.		18.800	5.29

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 30	E	15.791	24.95	25.44
May 2		.805	24.81	25.72
7		——	24.71	25.60
9		.817	24.76	25.92
22		.828	24.58	26.20
23		.793	25.02	25.37
June 19		.796	24.81	25.67
1894.38	6, 7	15.805	24.81	25.70
1895.				
May 13	W	18.808	5.64	25.24
14		.804	5.56	25.07
16		.793	5.14	25.85
17		.829	5.39	25.55
1895.37	4	18.808	5.43	25.43
East	6, 7	18.824	5.19	25.70
West	4	.808	5.43	25.43
		18.818	5.28	25.60
Flex.			.00	−.06
			5.28	25.54
Sys. Red.		+.002	+.01	
1895.0	10, 11	12 50 18.820	+3 58 5.29	
Obs. − B. J.		+.017	+0.10	
Obs. − C. T.		−.03	+0.9	
Obs. − N. A.		+.017	+0.40	
Obs. − 303.		+.020	0.00	

ε VIRGINIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	2.6	12 56 57.004	+11 31 24.65
A. E.		57.043	24.55
N. A.		56.970	24.44

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 3	E	53.995	44.10	25.36
4		54.000	43.86	25.79
5		.013	44.40	25.58
30		.993	43.86	25.78
May 2		.949	44.03	25.75
7		——	43.75	25.81
9		.938	44.00	25.93
22		.983	44.62	25.41
23		.990	44.79	24.85
June 19		.023	44.27	25.46
1894.34	9, 10	53.987	44.17	25.57
1895.				
Apr. 10	W	56.915	24.74	25.50
11		.943	24.32	25.97
15		.927	24.73	25.44
17		.926	24.37	25.89
18		.960	24.09	25.84
May 8		.968	24.39	25.85
13		.891	24.49	25.85
14		.954	24.47	25.62
16		.959	24.34	26.11
17		.914	24.39	26.01
1895.33	10	56.936	24.43	25.81
East	9, 10	56.974	24.76	25.57
West	10	.936	24.43	25.81
		56.954	24.59	25.69
Flex.			−.01	−.04
			24.58	25.65
Sys. Red.		−.007	−.01	
1895.0	19, 20	12 56 56.947	+11 31 24.57	
Obs. − B. J.		−.057	−0.08	
Obs. − A. E.		−.096	+0.02	
Obs. − N. A.		−.023	+0.13	

9 VIRGINIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.3	13 4 30.735	−4 58 42.20
A. E.		30.756	42.46
C. T.		30.75	42.4
N. A.		30.747	42.75
303.		30.746	41.95

Date. 1894.	Obs.	Mean R. A.	Mean Decl.	φ
		h m s	° ′ ″	″
Apr. 3	E	27.703	22.83	25.33
4		.713	22.69	25.38
5		.645	23.02	26.04
30		.647	23.01	25.69
May 2		.624	22.82	25.64
7		.633	22.74	25.34
9		.686	23.02	25.99
22		.657	22.71	25.78
23		.649	22.91	25.59
June 8		.662	23.09	25.80
19		.616	22.28	26.05
1894.35	11	27.658	22.83	25.69
1895.				
Mar. 4	W	30.763	42.35	25.83
Apr. 2		.742	42.38	25.89
5		.750	41.84	25.78
8		.736	42.45	25.59
10		.785	41.93	25.32
11		.778	42.45	25.89
22		.777	42.55	25.44
May 7		.770	42.33	25.83
8		.744	42.34	25.73
13		.853	41.51	25.00
14		.736	41.90	25.14
16		.736	42.19	25.79
17		.766	42.12	25.67
1895.30	13	30.764	42.18	25.61
1896.				
Mar. 10	E	33.835	59 1.88	26.08
12		.809	1.81	25.88
May 7		.897	1.47	25.52
11		.835	1.95	26.36
1896.27	4	33.844	1.78	25.96
East	11	30.759	42.13	25.69
West	13	.764	42.18	25.61
East	4	.744	42.48	25.96
		30.759	−42.20	25.69
Flex.			+ .01	− .07
			−42.19	25.62
Sys. Red.		+.003	.00	
1895.0	28	13 4 30.762	−4 58 42.19	
Obs. − B. J.		+.027	+0.01	
Obs. − A. E.		+.006	+0.27	
Obs. − C. T.		+.01	+0.2	
Obs. − N. A.		+.015	+0.56	
Obs. − 303.		+.016	−0.24	

ζ VIRGINIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	3.3	13 29 20.517	−0 3 32.19
A. E.		20.542	32.48
C. T.		20.54	31.5
N. A.		20.501	32.12
303.		20.511	31.77

Date. 1894.	Obs.	Mean R. A.	Mean Decl.	φ
		h m s	° ′ ″	″
Apr. 3	E	17.420	14.35	26.05
4		.428	14.19	26.08
5		.459	13.65	25.87
30		.457	14.14	26.02
May 2		.485	14.17	26.19
7		.462	14.21	26.01
9		.452	13.85	26.01
22		.445	14.20	26.47
23		.452	14.07	25.95
June 8		.443	13.96	25.87
19		.396	13.84	25.81
1894.35	11	17.445	14.06	26.03
1895.				
May 13	W	20.545	32.69	26.19
16		.560	32.19	25.80
17		.517	32.36	25.92
1895.37	3	20.541	32.41	25.97
1896.				
May 7	E	23.545	51.26	26.13
11		.609	51.23	26.46
1896.35	2	23.577	51.24	26.29
East	11	20.498	32.55	26.03
West	3	.541	32.41	25.97
East	2	.525	32.75	26.29
		20.510	32.55	26.05
Flex.			.00	− .06
			−32.55	25.99
Sys. Red.		−.001	− .05	
1895.0	16	13 29 20.509	−0 3 32.60	
Obs. − B. J.		−.008	−0.41	
Obs. − A. E.		−.033	−0.12	
Obs. − C. T.		−.03	−1.1	
Obs. − N. A.		+.008	−0.48	
Obs. − 303.		−.002	−0.83	

τ VIRGINIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″	
B. J.	4.0	13 56 18.110	+2 3 8.99	
C. T.		18.10	9.0	
N. A.		18.089	9.80	
303.		18.116	10.18	
Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 9	E	15.066	27.47	24.66
16		.091	27.01	24.74
17		.093	27.07	25.15
18		.087	26.99	24.55
May 7		.029	——	——
June 8		.026	——	——
1894.29	6, 4	15.065	27.13	24.77
1895.				
Apr. 10	W	18.114	9.57	25.01
11		.108	9.85	24.78
15		.102	9.80	24.71
17		.138	10.05	24.55
May 21		.081	10.27	24.75
1895.30	5	18.109	9.91	24.76
1896.				
Mar. 10	E	21.157	2 51.80	25.34
East	6, 4	18.114	3 9.57	24.77
West	5	.109	9.91	24.76
East	1	.108	9.35	25.34
		18.111	9.72	24.82
Flex.			.00	−.06
			9.72	24.76
Sys. Red.		.000	+ .10	
1895.0	12, 10	13 56 18.111	+2 3 9.82	
Obs. − B. J.		+.001	+0.83	
Obs. − C. T.		+.01	+0.8	
Obs. − N. A.		+.022	+0.02	
Obs. − 303.		−.005	−0.36	

ι VIRGINIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″	
B. J.	4.0	14 10 30.418	−5 29 58.08	
303.		30.440	57.71	
Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 15	W	30.454	58.46	25.90
17		.439	57.87	25.40
18		.424	58.23	25.43
22		.421	58.47	25.48
May 7		.483	58.21	25.83
8		.501	57.91	25.42
1895.32	6	30.454	58.19	25.58
1896.				
Mar. 12	E	33.598	30 15.01	25.20
West	6	30.454	29 58.19	25.58
East	1	.459	57.71	25.20
		30.455	−58.12	25.53
Flex.			+ .01	−.07
			−58.11	25.46
Sys. Red.		+.005	.00	
1895.0	7	14 10 30.460	−5 29 58.11	
Obs. − B. J.		+.042	−0.03	
Obs. − 303.		+.020	−0.40	

φ VIRGINIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″	
B. J.	5.0	14 22 47.490	−1 45 26.01	
303.		47.481	25.39	
Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
May 13	W	47.486	25.90	25.58
14		.499	25.70	25.13
16		.448	25.86	25.65
17		.476	25.46	25.20
1895.37	4	47.477	−25.73	25.39
Flex.			+ .01	−.06
			−25.72	25.33
Sys. Red.		−.002	+ .04	
1895.0	4	14 22 47.475	−1 45 25.68	
Obs. − B. J.		−.015	+0.33	
Obs. − 303.		−.006	−0.29	

μ VIRGINIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	14 37 31.537	−5 12 5.78
303.		31.544	5.35

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 9	E	28.402	11 49.85	25.46
16		.412	49.87	25.10
17		.371	50.16	25.86
18		.415	49.79	24.81
May 22		.329	49.34	25.34
23		.406	49.74	25.35
June 8		.425	49.37	25.01
19		.374	50.20	25.90
1894.36	8	28.392	49.79	25.35
1895.				
Apr. 18	W	31.549	12 5.76	25.26
22		.536	5.57	24.88
May 7		.501	5.97	25.89
8		.590	6.06	25.87
22		.527	5.51	25.45
23		.561	5.34	25.65
29		.562	5.39	25.81
1895.36	7	31.547	5.66	25.54
East	8	31.548	5.60	25.35
West	7	.547	5.66	25.54
		31.548	−5.63	25.44
Flex.			+ .01	−.07
			−5.62	25.37
Sys. Red.		+.001	+ .02	
1895.0	15	14 37 31.549	−5 12 5.60	
Obs. − B. J.		+.012	+0.18	
Obs. − 303.		+.005	−0.25	

PIAZZI 221.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	6.0	14 51 15.886	+14 52 15.20

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 9	E	13.025	29.43	26.04
16		.016	29.15	25.94
17		.038	28.81	26.76
18		.020	29.42	25.46
1894.29	4	13.025	29.20	26.05
1895.				
May 21	W	15.803	14.46	26.77
22		.869	14.92	26.00
23		.770	15.03	26.26
29		.809	14.49	26.91
1895.40	4	15.813	14.72	26.48
East	4	15.855	14.51	26.05
West	4	.813	14.72	26.48
		15.834	14.61	26.27
Flex.			−.02	−.04
			14.59	26.23
Sys. Red.		−.007	−.09	
1895.0	8	14 51 15.827	+14 52 14.50	
Obs. − B. J.		−.059	−0.70	

β LIBRAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	2.0	15 11 21.349	−8 59 43.40
A. E.		21.365	43.51
C. T.		21.34	42.7
N. A.		21.321	43.53
303.		21.339	42.84

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 30	E	18.102	29.62	25.27
May 2		.160	30.01	25.80
7		.147	30.12	25.69
9		.093	30.05	25.99
June 20		.091	29.80	25.35
21		.089	30.02	25.22
25		.101	29.82	25.26
26		.171	29.98	25.41
1894.42	8	18.119	29.93	25.50
1895.				
Apr. 18	W	21.353	43.08	24.96
May 7		.336	43.67	25.97
8		.258	43.57	25.76
21		.405	43.26	25.89
22		.320	42.54	24.86
23		.345	42.70	25.39
29		.321	43.27	26.07
1895.37	7	21.334	43.16	25.56
1896.				
June 8	E	24.540	57.01	26.08
10		.522	56.03	25.15
11		.553	56.59	26.07
12		.531	56.97	25.76
1896.44	4	24.536	56.65	25.76
East	8	21.341	43.40	25.50
West	7	.334	43.16	25.56
East	4	.315	43.17	25.76
		21.333	−43.26	25.58
Flex.			+ .01	−.07
			−43.25	25.51
Sys. Red.		−.002	+ .02	
1895.0	19	15 11 21.331	−8 59 43.23	
Obs. − B. J.		−.018	+0.17	
Obs. − A. E.		−.034	+0.28	
Obs. − C. T.		−.01	−0.5	
Obs. − N. A.		+.010	+0.30	
Obs. − 303.		−.008	−0.39	

α SERPENTIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	2.3	15 39 5.721	+6 45 21.80
A. E.		5.746	21.52
C. T.		5.69	22.5
N. A.		5.685	21.86

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 30	E	2.777	33.62	25.27
May 2		.766	33.53	25.50
7		.773	33.69	25.12
9		.784	33.52	25.65
June 20		.782	33.49	25.30
21		.773	33.46	24.98
25		.766	33.51	25.17
26		.749	34.06	24.61
1894.42	8	2.771	33.61	25.20
1895.				
Apr. 18	W	5.707	21.99	25.09
22		.761	22.62	24.27
May 7		.700	22.04	25.46
8		.720	21.86	25.53
21		.730	22.04	25.79
22		.719	22.23	25.29
23		.700	22.01	25.88
29		.697	22.48	25.52
1895.36	8	5.717	22.16	25.35
East	8	5.722	22.10	25.20
West	8	.717	22.16	25.35
		5.720	22.13	25.27
Flex.			−.01	−.05
			22.12	25.22
Sys. Red.		.000	+.05	
1895.0	16	15 39 5.720	+6 45 22.17	
Obs. − B. J.		−.001	+0.37	
Obs. − A. E.		−.026	+0.65	
Obs. − C. T.		+.03	−0.3	
Obs. − N. A.		+.035	+0.31	

ε SERPENTIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.3	15 45 34.850	+4 47 37.79
A. E.		34.905	38.29
N. A.		34.837	38.05
303.		34.863	38.08

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 30	E	31.876	48.84	25.57
May 2		.875	49.13	25.42
7		.870	49.39	24.94
9		.893	49.12	25.58
June 20		.900	48.61	25.70
21		.866	48.94	25.02
25		.853	48.69	25.51
26		.867	49.20	24.99
1894.42	8	31.875	48.99	25.34
1895.				
May 13	W	34.871	38.41	25.07
14		.881	38.34	24.89
16		.918	37.91	25.68
17		.864	38.61	24.93
1895.37	4	34.883	38.32	25.14
1896.				
June 8	E	37.816	27.15	25.55
10		.855	27.00	25.75
11		.822	27.34	25.77
12		.873	27.53	24.89
1896.44	4	37.842	27.26	25.49
East	8	34.861	37.95	25.34
West	4	.883	38.32	25.14
East	4	.856	38.30	25.49
		34.865	38.13	25.33
Flex.			.00	−.05
			38.13	25.28
Sys. Red.		+.002	+.05	
1895.0	16	15 45 34.867	+4 47 38.18	
Obs. − B. J.		+.017	+0.39	
Obs. − A. E.		−.038	−0.11	
Obs. − N. A.		+.030	+0.13	
Obs. − 303.		+.004	+0.10	

δ OPHIUCHI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.0	16 8 50.522	−3 25 25.69
A. E.		50.562	25.64
C. T.		50.49	24.4
N. A.		50.490	25.73
303.		50.522	25.18

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 22	W	50.479	26.42	25.82
1896.				
June 8	E	53.701	35.13	25.90
10		.666	35.08	25.90
11		.621	35.31	26.49
12		.638	34.99	25.48
1896.44	4	53.656	35.13	25.94
West	1	50.479	26.42	25.82
East	4	.517	25.64	25.94
		50.509	−25.80	25.92
Flex.			+.01	−.06
			−25.79	25.86
Sys. Red.		−.002	−.01	
1895.0	5	16 8 50.507	−3 25 25.80	
Obs. − B. J.		−.015	−0.11	
Obs. − A. E.		−.055	−0.16	
Obs. − C. T.		+.02	−1.4	
Obs. − N. A.		+.017	−0.07	
Obs. − 303.		−.015	−0.62	

ζ OPHIUCHI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	2.6	16 31 22.564	−10 21 15.31
A. E.		22.599	15.28
N. A.		22.536	15.35
303.		22.553	14.69

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
May 22	E	19.322	7.74	25.93
23		.271	8.38	26.18
June 8		.238	8.38	26.21
19		.322	8.40	26.29
July 5		.278	7.58	25.30
6		.272	7.79	25.84
11		.276	7.90	25.60
13		.223	8.02	25.74
1894.47	8	19.275	8.02	25.89
1895.				
May 13	W	22.579	15.31	25.69
14		.628	15.67	25.80
16		.582	15.12	25.61
17		.632	15.36	25.80
July 15		.553	14.91	25.18
16		.574	15.43	25.71
17		.556	14.87	25.32
19		.537	14.59	25.37
1895.46	8	22.580	15.16	25.56
1896.				
June 8	E	25.846	22.93	26.04
10		.850	23.00	26.16
11		.883	23.29	26.81
12		.856	23.14	25.97
1896.44	4	25.859	23.09	26.24
East	8	22.573	15.55	25.89
West	8	.580	15.16	25.56
East	4	.561	15.56	26.24
		22.574	−15.40	25.82
Flex.			+ .02	−.07
			−15.38	25.75
Sys. Red.		+.001	− .01	
1895.0	20	16 31 22.575	−10 21 15.39	
Obs. − B. J.		+.011	−0.08	
Obs. − A. E.		−.024	−0.11	
Obs. − N. A.		+.039	−0.04	
Obs. − 303.		+.022	−0.70	

κ OPHIUCHI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.3	16 52 41.842	+9 32 18.62
A. E.		41.893	18.45
C. T.		41.78	19.6
N. A.		41.824	17.79

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
June 20	E	39.007	24.08	25.81
21		.048	24.25	25.29
25		.059	24.26	25.52
26		.004	23.97	25.80
July 5		38.970	24.26	25.65
6		.997	24.33	25.91
11		.970	24.74	25.15
13		.978	24.37	25.54
1894.50	8	39.004	24.28	25.58
1895.				
May 21	W	41.928	18.12	26.53
22		.859	17.93	26.41
23		.863	18.22	26.49
29		.873	17.84	26.98
July 15		.842	17.96	26.24
17		.869	18.07	26.31
19		.872	17.97	26.74
22		.835	17.89	26.48
23		.836	18.03	26.21
24		.861	18.33	25.94
25		.870	18.08	26.08
1895.50	11	41.864	18.04	26.40
1896.				
June 16	E	44.683	12.81	25.95
17		.682	12.84	25.91
19		.632	12.80	26.08
22		.687	12.62	26.11
1896.47	4	44.671	12.77	26.01
East	8	41.841	18.49	25.58
West	11	.864	18.04	26.40
East	4	.835	18.56	26.01
		41.851	18.28	26.05
Flex.			−.01	−.05
			18.27	26.00
Sys. Red.		+.001	−.05	
1895.0	23	16 52 41.852	+9 32 18.22	
Obs. − B. J.		+.010	−0.40	
Obs. − A. E.		−.041	−0.23	
Obs. − C. T.		+.07	−1.4	
Obs. − N. A.		+.028	+0.43	

α HERCULIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3½	17 9 51.553	+14 30 36.09
A. E.		51.573	36.47
C. T.		51.51	37.2
N. A.		51.525	36.23

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
May 22	E	48.791	41.24	25.15
23		.828	40.87	25.13
June 8		.846	41.09	24.94
19		.821	41.05	25.04
July 5		.821	40.80	25.12
6		.827	41.23	25.04
11		.814	41.10	24.80
13		.811	40.73	25.19
1894.47	8	48.820	41.01	25.05
1895.				
July 22	W	51.524	36.81	25.03
23		.537	36.56	25.15
24		.542	36.73	24.98
25		.515	36.78	24.85
1895.56	4	51.529	36.72	25.00
East	8	51.553	36.68	25.05
West	4	.529	36.72	25.00
		51.545	36.70	25.03
Flex.			−.02	−.04
			36.68	24.99
Sys. Red.		−.001	+.08	
1895.0	12	17 9 51.544	+14 30 36.76	
Obs. − B. J.		−.009	+0.67	
Obs. − A. E.		−.029	+0.29	
Obs. − C. T.		+.03	−0.4	
Obs. − N. A.		+.019	+0.53	

α OPHIUCHI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	2.0	17 30 3.589	+12 38 11.80
A. E.		3.614	11.65
C. T.		3.53	12.7
N. A.		3.572	11.41

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
May 22	E	0.786	14.16	26.45
23		.801	15.01	25.21
June 8		.772	14.67	25.58
19		.803	14.47	25.84
20		.811	15.05	25.07
21		.800	14.40	25.37
25		.809	15.07	24.94
26		.754	14.33	25.67
1894.45	8	0.792	14.64	25.52
1895.				
May 13	W	3.533	11.68	25.81
14		.533	11.72	25.52
16		.584	12.01	25.59
17		.569	11.58	25.97
21		.563	12.21	25.62
22		.591	12.34	25.18
23		.608	12.17	25.72
29		.552	12.43	25.57
1895.38	8	3.567	12.02	25.62
East	8	3.574	11.80	25.52
West	8	.567	12.02	25.62
		3.570	11.91	25.57
Flex.			−.02	−.04
			11.89	25.53
Sys. Red.		−.003	+.01	
1895.0	16	17 30 3.567	+12 38 11.90	
Obs. − B. J.		−.022	+0.10	
Obs. − A. E.		−.047	+0.25	
Obs. − C. T.		+.04	−0.8	
Obs. − N. A.		−.005	+0.49	

β OPHIUCHI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	3.0	17 38 17.089	+4 36 40.93
C. T.		16.99	41.8
N. A.		17.072	40.39
303.		17.096	41.05

Date. 1894.	Obs.	Mean R. A.	Mean Decl.	φ
		h m s	° ′ ″	″
May 22	E	14.155	42.78	25.85
23		.151	42.69	25.55
June 8		.117	42.81	25.46
19		.133	42.57	25.76
20		.116	42.68	25.46
21		.152	42.81	24.98
25		.117	42.39	25.64
26		.139	42.27	25.75
July 5		.117	42.84	25.32
6		.104	42.50	25.99
11		.136	42.96	25.18
13		.183	42.95	25.21
1894.47	12	14.135	42.69	25.51
1895.				
May 13	W	17.056	40.70	25.92
14		.089	41.04	25.33
16		.100	41.04	25.69
17		.078	40.72	25.96
July 15		.063	41.19	25.32
16		.049	41.10	25.42
17		.064	41.51	25.18
19		.138	41.08	25.94
22		.110	41.33	25.35
23		.104	41.15	25.40
24		.097	41.05	25.53
25		.103	40.73	25.74
1895.49	12	17.088	41.05	25.56
1896.				
June 16	E	20.060	39.21	25.92
17		.040	39.36	25.76
19		.034	39.01	26.24
22		.069	39.44	25.66
1896.47	4	20.051	39.26	25.89
East	12	17.096	40.96	25.51
West	12	.088	41.05	25.56
East	4	.090	40.99	25.89
		17.092	41.00	25.59
Flex.			.00	−.05
			41.00	25.54
Sys. Red.		.000	+.01	
1895.0	28	17 38 17.092	+4 36 41.01	
Obs. − B. J.		+.003	+0.08	
Obs. − C. T.		+.10	−0.8	
Obs. − N. A.		+.020	+0.62	
Obs. 303.		.004	0.04	

γ OPHIUCHI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	3.6	17 53 14.728	−9 45 36.79
C. T.		14.74	37.2
303.		14.723	36.92

Date. 1894.	Obs.	Mean R. A.	Mean Decl.	φ
		h m s	° ′ ″	″
May 22	E	11.434	37.23	27.10
23		.389	37.12	26.60
June 8		.446	36.49	26.00
19		.438	36.28	25.85
July 5		.409	36.60	26.00
6		.477	36.54	26.27
11		.457	37.13	26.51
13		.487	36.56	25.96
16		.411	36.49	25.71
1894.48	9	11.439	36.72	26.22
1895.				
May 13	W	14.753	37.69	26.59
14		.740	37.79	26.44
16		.686	37.25	26.26
17		.726	37.56	26.52
21		.727	37.73	26.97
22		.742	37.72	26.65
23		.811	37.77	27.07
29		.784	36.97	26.38
July 15		.744	37.30	26.09
16		.761	37.54	26.34
17		.747	37.31	26.28
19		.696	37.90	27.20
22		.764	37.46	26.42
23		.752	37.49	26.32
24		.718	37.72	26.58
25		.735	37.30	26.05
1895.47	16	14.743	37.53	26.51
1896.				
June 8	E	18.022	37.99	26.47
10		.041	38.25	26.78
11		.002	38.86	27.75
12		.060	38.43	26.63
16		17.984	38.05	26.51
17		.030	38.52	26.97
19		.043	38.65	27.23
22		.016	38.28	26.71
1896.45	8	18.025	38.38	26.88
East	9	14.739	37.41	26.22
West	16	.743	37.53	26.51
East	8	.725	37.70	26.88
		14.737	−37.54	26.53
Flex.			+ .02	−.07
			−37.52	26.46
Sys. Red.		+.001	− .10	
1895.0	33	17 53 14.738	−9 45 37.62	
Obs. − B. J.		+.010	−0.83	
Obs. − C. T.		.00	−0.4	
Obs. − 303.		+.015	−0.70	

72 OPHIUCHI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.3	18 2 22.264	+9 32 56.64
N. A.		22.254	56.12

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
May 21	W	22.241	56.76	25.91
22		.293	56.42	25.94
23		.257	56.45	26.28
29		.314	56.49	26.35
1895.40	4	22.276	56.53	26.12
1896.				
June 16	E	25.084	57.17	25.70
17		.090	57.30	25.56
19		.133	57.69	25.30
22		.011	57.44	25.40
1896.47	4	25.080	57.40	25.49
West	4	22.276	56.53	26.12
East	4	.238	57.10	25.49
		22.257	56.81	25.80
Flex.			−.01	−.05
			56.80	25.75
Sys. Red.		−.001	+.02	
1895.0	8	18 2 22.256	+9 32 56.82	
Obs. − B. J.		−.008	+0.18	
Obs. − N. A.		+.002	+0.70	

η SERPENTIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.0	18 15 52.540	−2 55 32.77
A. E.		52.588	32.14
C. T.		52.57	31.7
N. A.		52.533	33.26
303.		52.563	32.54

Date. 1896.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
June 8	E	55.680	32.09	25.99
10		.713	32.62	26.57
11		.714	32.85	27.16
12		.692	32.17	25.79
16		.669	32.66	26.54
17		.675	32.75	26.63
19		.667	32.27	26.27
22		.724	32.45	26.30
1896.45	8	55.692	32.48	26.41
East	8	52.592	−33.20	26.41
Flex.			+.01	−.06
			−33.19	26.35
Sys. Red.		+.007	−.06	
1895.0	8	18 15 52.599	−2 55 33.25	
Obs. − B. J.		+.059	−0.48	
Obs. − A. E.		+.011	−1.11	
Obs. − C. T.		+.03	−1.5	
Obs. − N. A.		+.066	+0.01	
Obs. − 303.		+.036	−0.71	

λ AQUILAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.1	19 0 40.560	−5 2 23.45
C. T.		40.55	22.3
303.		40.581	22.65

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 13	E	34.276	33.62	25.79
14		.233	33.33	25.22
15		.232	33.58	25.62
20		.202	33.69	26.37
22		.219	32.76	25.15
25		.223	34.39	26.93
1893.72	6	34.231	33.56	25.85
1894.				
June 20	E	37.421	28.98	25.85
21		.395	28.47	24.99
25		.403	29.23	25.99
26		.391	28.30	25.05
July 5		.363	28.56	25.45
6		.386	28.80	26.02
11		.375	29.31	26.18
13		.400	28.69	25.58
16		.392	29.15	25.86
18		.381	28.54	25.51
20		.405	28.29	25.64
23		.432	29.07	25.96
1894.52	12	37.395	28.78	25.67
1895.				
July 15	W	40.617	22.80	24.93
16		.563	23.33	25.47
17		.565	23.19	25.50
19		.593	23.42	26.06
30		.606	23.66	25.77
31		.583	23.58	25.48
Aug. 5		.569	23.34	25.25
8		.552	23.95	25.79
14		.541	23.56	25.66
1895.57	9	40.577	23.43	25.55
1896.				
June 8	E	43.756	18.44	26.11
10		.749	18.58	26.30
11		.762	17.90	25.98
12		.754	18.26	25.65
1896.44	4	43.755	18.29	26.01
East	18	40.584	23.49	25.73
West	9	.577	23.43	25.55
East	4	.573	23.46	26.01
		40.581	−23.47	25.71
Flex.			+ .01	−.07
			−23.46	25.64
Sys. Red.		+.003	.00	
1895.0	31	19 0 40.584	−5 2 23.46	
Obs. − B. J.		+.024	−0.01	
Obs. − C. T.		+.03	−1.2	
Obs. − 303.		+.003	−0.81	

ω AQUILAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	5.6	19 12 53.264	+11 24 22.30
C. T.		53.18	23.0
N. A.		53.233	21.87

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 13	E	47.568	9.55	26.10
14		.663	9.43	25.94
15		.587	10.22	25.30
20		.634	9.68	26.48
22		.666	9.82	26.05
25		.684	9.61	26.41
1893.72	6	47.634	9.72	26.05
1894.				
June 20	E	50.438	16.07	25.41
21		.405	15.61	25.52
25		.442	16.05	25.32
26		.470	15.34	26.02
July 16		.430	16.09	25.23
18		.448	16.31	25.27
20		.396	15.79	26.17
23		.413	16.17	25.33
1894.52	8	50.430	15.93	25.53
1895.				
July 30	W	53.222	21.87	25.99
31		.255	22.00	25.65
Aug. 5		.230	21.85	25.83
8		.217	22.12	25.47
1895.59	4	53.231	21.96	25.73
1896.				
June 8	E	56.060	29.11	25.43
10		.028	29.20	25.39
11		.067	30.13	24.82
12		.017	29.07	25.19
1896.44	4	56.043	29.38	25.21
East	14	53.253	22.26	25.75
West	4	.231	21.96	25.73
East	4	.228	23.09	25.21
		53.245	22.34	25.65
Flex.			−.01	−.04
			22.33	25.61
Sys. Red.		−.003	.00	
1895.0	22	19 12 53.242	+11 24 22.33	
Obs. − B. J.		−.022	+0.03	
Obs. − C. T.		+.06	−0.7	
Obs. − N. A.		+.009	+0.46	

δ AQUILAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.3	19 20 12.238	+2 54 19.85
A. E.		12.254	20.01
C. T.		12.16	20.8
N. A.		12.202	20.12
303.		12.233	20.63

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 13	E	6.142	6.25	25.62
14		.158	5.92	25.67
15		.185	6.22	25.52
20		.169	5.82	26.56
22		.142	6.03	26.06
25		.208	6.04	26.20
1893.72	6	6.167	6.05	25.94
1894.				
June 20	E	9.181	13.02	25.35
21		.216	13.23	24.79
25		.194	13.26	25.00
26		.201	13.33	24.92
July 16		.166	13.29	24.92
18		.218	13.40	25.07
20		.248	12.27	26.58
23		.234	12.97	25.42
1894.52	8	9.207	13.10	25.26
1895.				
July 15	W	12.236	20.11	25.32
16		.218	20.59	24.85
17		.205	20.39	25.22
19		.197	20.17	25.77
30		.247	20.39	25.02
31		.261	20.37	24.83
Aug. 5		.284	20.08	25.13
8		.236	20.20	24.94
12		.193	20.27	25.04
16		.206	20.21	25.24
21		.182	20.11	25.36
1895.58	11	12.224	20.26	25.16
1896.				
June 16	E	15.307	26.79	25.96
17		.268	27.21	25.53
19		.218	26.90	25.97
22		.295	26.95	25.77
1896.47	4	15.272	26.96	25 81
East	14	12.225	20.02	25.55
West	11	.224	20.26	25.16
East	4	.248	19.99	25.81
		12.228	20.12	25.44
Flex.			.00	−.06
			20.12	25.38
Sys. Red.		−.001	+.04	
1895.0	29	19 20 12.227	+2 54 20.16	
Obs. − B. J.		−.011	+0.31	
Obs. − A. E.		−.027	+0.15	
Obs. − C. T.		+.07	−0.6	
Obs. − N. A.		+.025	+0.04	
Obs. − 303.		−.006	−0.47	

γ AQUILAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.0	19 41 16.044	+10 21 26.98
A. E.		16.071	26.89
C. T.		15.99	27.8
N. A.		16.025	26.44

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 14	E	10.313	9.73	25.75
20		.316	9.70	26.57
25		.272	9.70	26.43
1893.72	3	10.300	9.71	26.25
1894.				
July 5	E	13.206	18.10	25.80
6		.157	18.39	25.84
11		.206	18.47	25.41
13		.152	18.02	25.88
16		.181	18.78	24.94
18		.168	18.45	25.53
20		.212	17.92	26.44
23		.171	18.17	25.73
1894.54	8	13.182	18.29	25.70
1895.				
July 15	W	16.006	26.97	25.59
16		.021	26.79	25.78
17		.030	26.42	26.32
19		15.948	27.31	25.76
22		.044	27.21	25.52
23		.024	27.01	25.59
24		.022	26.82	25.81
25		.004	27.09	25.43
30		.058	27.04	25.50
31		.004	26.92	25.41
Aug. 5		.057	27.17	25.17
8		.087	26.73	25.54
12		.046	26.84	25.60
14		.035	27.10	25.43
16		.048	26.84	25.74
21		.025	27.27	25.33
1895.58	16	16.029	26.97	25.59
1896.				
June 16	E	18.884	36.07	25.42
17		.905	35.97	25.51
19		.877	35.73	25.88
22		.858	35.89	25.57
1896.47	4	18.881	35.91	25.59

γ AQUILAE.

	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
East	11	16.025	26.87	25.85
West	16	.029	26.97	25.59
East	4	.030	27.33	25.59
		16.028	26.98	25.68
Flex.			−.01	−.05
			26.97	25.63
Sys. Red.		−.002	.00	
1895.0	31	19 41 16.026	+10 21 26.97	
Obs. − B. J.		−.018	−0.01	
Obs. − A. E.		−.045	+0.08	
Obs. − C. T.		+.04	−0.8	
Obs. − N. A.		+.001	+0.53	

β AQUILAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	19 50 9.301	+6 8 40.65
A. E.		9.337	40.31
C. T.		9.26	41.0
N. A.		9.258	40.86

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
July 5	E	6.377	32.12	25.23
6		.368	31.99	25.69
11		.354	32.38	24.95
13		.338	32.42	24.93
1894.52	4	6.359	32.23	25.20
1895.				
July 22	W	9.241	41.04	25.36
23		.314	40.95	25.32
24		.303	40.74	25.56
25		.282	40.95	25.24
1895.56	4	9.285	40.92	25.37
East	4	9.305	41.03	25.20
West	4	.285	40.92	25.37
		9.295	40.97	25.28
Flex.			−.01	−.05
			40.96	25.23
Sys. Red.		−.001	+.04	
1895.0	8	19 50 9.294	+6 8 41.00	
Obs. − B. J.		−.007	+0.35	
Obs. − A. E.		−.043	+0.69	
Obs. − C. T.		+.03	0.0	
Obs. − N. A.		+.036	+0.14	

9 AQUILAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.0	20 5 53.189	− 1 7 58.23
A. E.		53.206	58.37
C. T.		53.16	57.6
N. A.		53.183	57.83
303.		53.207	57.92

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 13	E	47.074	8 18.98	25.73
15		.058	19.26	25.88
22		46.986	19.88	26.84
1893.71	3	47.039	19.37	26.15
1894.				
July 16	E	50.140	8.50	25.10
20		.124	8.63	25.88
1894.55	2	50.132	8.56	25.49
1895.				
July 15	W	53.197	7 58.63	25.98
16		.218	58.22	25.98
17		.210	58.40	25.93
19		.271	58.04	25.90
Aug. 12		.258	58.07	25.30
14		.226	57.96	25.28
16		.212	58.03	25.40
21		.231	58.08	25.47
1895.58	8	53.228	58.18	25.60
East	5	53.229	58.28	25.89
West	8	.228	58.18	25.60
		53.228	− 58.22	25.71
Flex.			+ .01	− .06
			− 58.21	25.65
Sys. Red.		+ .006	.00	
1895.0	13	20 5 53 234	− 1 7 58.21	
Obs. − B. J.		+ .045	+ 0.02	
Obs. − A. E.		+ .028	+ 0.16	
Obs. − C. T.		+ .07	− 0.6	
Obs. − N. A.		+ .051	− 0.38	
Obs. − 303.		+ .027	− 0.29	

ε DELPHINI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	20 28 11.783	+ 10 56 47.13
A. E.		11.827	47.70
N. A.		11.760	46.59

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 14	E	6.058	23.95	24.73
20		.137	23.56	25.91
Oct. 5		.014	23.96	24.94
1893.73	3	6.070	23.82	25.19
1895.				
July 22	W	11.770	46.97	25.91
23		.756	47.63	25.12
24		.776	47.40	25.38
25		.795	47.13	25.54
30		.770	46.83	25.86
31		.824	47.08	25.40
Aug. 5		.791	47.04	25.45
8		.819	47.75	24.67
1895.58	8	11.788	47.23	25.42
Sept. 4	E	11.795	46.69	25.96
6		.731	47.40	25.06
19		.768	46.91	25.74
23		.772	47.56	24.90
1895.70	4	11.766	47.14	25.41
1896.				
June 16	E	14.638	59.70	25.42
17		.618	59.68	25.43
19		.697	59.79	25.45
22		.652	59.38	25.71
1896.47	4	14.651	59.64	25.50
East	3	11.801	47.93	25.19
West	8	.788	47.23	25.42
East	8	.776	47.36	25.45
		11.785	47.40	25.40
Flex.			− .01	− .04
			47.39	25.36
Sys. Red.		.000	+ .04	
1895.0	19	20 28 11.785	+ 10 56 47.43	
Obs. − B. J.		+ .002	+ 0.30	
Obs. − A. E.		− .042	− 0.27	
Obs. − N. A.		+ .025	+ 0.84	

ε AQUARII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.6	20 41 59.511	−9 52 48.44
N. A.		59.507	48.37
303.		59.513	47.76

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 2	E	53.007	53 13.88	25.06
3		.045	14.19	25.87
5		.033	14.13	25.60
10		52.994	14.15	25.93
1893.76	4	53.020	14.09	25.61
1894.				
Oct. 3	W	56.278	1.53	25.71
1895.				
July 22	W	59.564	52 48.60	25.91
23		.532	48.69	25.87
24		.527	48.18	25.39
25		.537	48.23	25.33
1895.56	4	59.540	48.42	25.62
Sept. 4	E	59.555	48.39	25.48
6		.526	48.61	25.50
19		.528	48.72	25.80
23		.536	47.54	24.43
1895.70	4	59.536	48.32	25.30
East	4	59.519	48.11	25.61
West	5	.537	48.44	25.64
East	4	.536	48.32	25.30
		59.531	−48.30	25.53
Flex.			+ .02	−.07
			−48.28	25.46
Sys. Red.		+.003	+ .02	
1895.0	13	20 41 59.534	−9 52 48.26	
Obs. − B. J.		+.023	+0.18	
Obs. − N. A.		+.027	+0.11	
Obs. − 303.		+.021	−0.50	

α EQUULEI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	21 10 34.481	+4 48 49.72
303.		34.484	50.13

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 2	E	28.526	19.67	26.18
3		.491	20.12	26.23
5		.489	20.04	26.10
10		.535	20.40	26.05
11		.532	20.30	26.07
12		.489	19.59	26.57
13		.476	20.32	26.47
17		.528	21.07	25.37
1893.77	8	28.508	20.19	26.13
1894.				
Oct. 3	W	31.513	35.23	25.36
4		.469	35.47	24.81
5		.513	35.24	25.02
9		.485	35.37	25.28
10		.470	34.62	25.84
1894.77	5	31.490	35.19	25.26
East	8	34.505	49.66	26.13
West	5	.488	49.93	25.26
		34.498	49.76	25.80
Flex.			−.01	−.05
			49.75	25.75
Sys. Red.		+.002	.00	
1895.0	13	21 10 34.500	+4 48 49.75	
Obs. − B. J.		+.019	+0.03	
Obs. − 303.		+.016	−0.38	

ε PEGASI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	2.3	21 39 1.732	+9 23 37.18
A. E.		1.759	37.09
C. T.		1.73	37.8
N. A.		1.700	36.71

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 13	E	38 55.782	4.73	25.62
14		.800	4.04	26.03
15		.755	4.35	25.87
20		.803	4.13	26.73
22		.844	4.03	26.54
25		.784	4.51	26.21
Oct. 2		.787	4.17	25.83
3		.771	4.50	26.00
5		.861	4.81	25.48
10		.854	4.30	26.30
11		.820	4.56	25.97
12		.795	4.31	26.01
13		.807	4.91	26.04
17		.809	4.21	26.39
1893.75	14	55.805	4.40	26.07
1894.				
July 16	E	58.762	20.83	25.29
18		.785	20.53	25.85
20		.700	21.39	25.37
23		.751	21.08	25.22
1894.55	4	58.749	20.96	25.43
Oct. 3	W	58.777	20.47	25.94
4		.802	20.36	25.74
5		.774	20.34	25.74
9		.785	20.41	26.06
10		.726	20.34	25.94
1894.77	5	58.773	20.38	25.88
1895.				
July 30	W	39 1.713	36.83	25.91
31		.711	36.79	25.74
Aug. 5		.732	36.98	25.56
8		.771	36.62	25.85
12		.720	37.16	25.48
14		.738	36.68	26.03
16		.724	37.27	25.51
21		.719	36.97	25.83
1895.61	8	1.728	36.91	25.74
Sept. 4	E	1.656	37.31	25.40
6		.730	36.97	25.54
19		.726	37.28	25.42
23		.643	36.99	25.52
1895.70	4	1.689	37.14	25.47

ε PEGASI.

	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
East	18	1.696	37.21	25.93
West	13	.725	36.85	25.79
East	4	.689	37.14	25.47
		1.706	37.07	25.83
Flex.			−.01	−.05
			37.06	25.78
Sys. Red.		−.004	−.02	
1895.0	35	21 39 1.702	+9 23 37.04	
Obs. − B. J.		−.030	−0.14	
Obs. − A. E.		−.057	−0.05	
Obs. − C. T.		−.03	−0.8	
Obs. − N. A.		+.002	+0.33	

20 PEGASI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	5.8	21 55 58.443	+12 37 0.75

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 11	E	52.560	36 27.33	25.27
12		.538	26.80	25.59
13		.575	27.34	25.68
17		.481	26.96	25.71
1893.79	4	52.538	27.11	25.56
1894.				
Oct. 3	W	55.427	44.15	25.07
4		.481	44.04	24.87
5		.502	43.81	25.08
9		.446	43.90	25.38
1894.76	4	55.464	43.98	25.10
1895.				
July 30	W	58.420	37 1.47	24.84
31		.398	1.09	25.01
Aug. 5		.382	1.12	24.99
8		.378	1.19	24.85
1895.59	4	58.394	1.22	24.92
Sept. 4	E	58.390	1.48	24.80
6		.400	0.92	25.16
19		.429	1.10	25.17
23		.401	0.50	25.58
1895.70	4	58.405	1.00	25.18
East	4	58.382	1.38	25.56
West	8	.390	1.17	25.01
East	4	.405	1.00	25.18
		58.392	1.18	25.19
Flex.			−.01	−.04
			1.17	25.15
Sys. Red.		−.007	+.06	
1895.0	16	21 55 58.385	+12 37 1.23	
Obs. − B. J.		−.058	+0.48	

9 AQUARII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.3	22 11 17.593	−8 18 21.94
A. E.		17.596	21.92
C. T.		17.54	21.5
N. A.		17.555	22.22
303.		17.567	21.46

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 2	E	11.232	57.60	25.62
3		.270	58.39	26.91
10		.228	57.67	26.21
1893.76	3	11.243	57.89	26.27
1895.				
Aug. 12	W	17.584	22.05	25.57
14		.566	21.81	25.42
16		.641	21.93	25.59
21		.584	21.88	25.56
1895.63	4	17.594	21.92	25.53
East	3	17.578	22.25	26.27
West	4	.594	21.92	25.53
		17.587	−22.06	25.85
Flex.			+ .01	−.07
			−22.05	25.78
Sys. Red.		−.001	− .02	
1895.0	7	22 11 17.586	−8 18 22.07	
Obs. − B. J.		−.007	−0.13	
Obs. − A. E.		−.010	−0.15	
Obs. − C. T.		+.05	−0.6	
Obs. − N. A.		+.031	+0.15	
Obs. − 303.		+.019	−0.61	

γ AQUARII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.4	22 16 13.961	−1 54 59.09
A. E.		13.965	59.11
C. T.		13.98	58.6
N. A.		13.952	59.03
303.		13.967	58.76

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 13	E	7.781	55 35.32	26.08
15		.770	35.60	26.23
20		.698	35.23	26.50
22		.758	35.61	26.59
25		.757	34.73	25.86
1893.72	5	7.753	35.30	26.25
1894.				
July 16	E	10.920	17.37	25.55
18		.860	17.55	25.99
20		.873	16.41	25.23
23		.861	16.50	24.86
1894.55	4	10.878	16.96	25.41
Oct. 10	W	10.842	17.12	25.46
12		.867	17.07	25.57
16		.818	16.57	25.01
22		.857	16.96	25.71
1894.79	4	10.846	16.93	25.44
1895.				
July 30	W	13.990	54 59.10	25.57
31		.994	59.00	25.26
Aug. 5		.982	59.23	25.50
8		.965	59.03	25.23
12		.933	59.24	25.61
14		14.017	59.16	25.62
16		.969	59.29	25.80
21		.001	59.40	25.93
1895.61	8	13.981	59.18	25.56
East	9	13.963	59.08	25.88
West	12	.969	59.08	25.52
		13.966	−59.08	25.67
Flex.			+ .01	−.06
			−59.07	25.61
Sys. Red.		+.001	.00	
1895.0	21	22 16 13.967	−1 54 59.07	
Obs. − B. J.		+.006	+0.02	
Obs. − A. E.		+.002	+0.04	
Obs. − C. T.		−.01	−0.5	
Obs. − N. A.		+.015	−0.04	
Obs. − 303.		.000	−0.31	

λ AQUARII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	22 47 8.171	−8 8 18.25
A. E.		8.234	17.70
C. T.		8.04	17.4
N. A.		8.173	18.20
303.		8.177	17.45

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 13	E	1.913	56.32	25.84
14		.943	56.72	25.96
15		.938	55.97	25.36
20		.952	56.64	26.67
22		.927	56.10	25.84
25		.985	56.48	26.37
Oct. 11		.914	56.64	26.34
12		.976	55.63	25.12
13		.977	56.47	26.59
17		2.017	55.89	25.66
Nov. 2		.928	56.78	26.00
3		.902	56.53	25.66
13		.939	56.80	25.56
14		.868	56.74	25.43
1893.78	14	1.941	56.41	25.89
1894.				
July 16	E	5.067	37.56	25.55
18		.069	37.30	25.55
20		.053	37.23	25.86
23		.099	36.99	25.16
1894.55	4	5.072	37.27	25.53
Oct. 3	W	5.082	37.17	25.45
4		.092	37.25	25.22
5		.066	37.18	25.13
9		.106	37.07	25.41
10		.127	37.11	25.26
12		.081	36.95	25.26
16		.090	37.40	25.65
22		.079	37.52	26.09
1894.78	8	5.090	37.21	25.43
1895.				
Aug. 12	W	8.169	17.91	25.12
14		.139	17.77	25.07
16		.175	18.02	25.37
21		.185	17.84	25.20
1895.63	4	8.167	17.88	25.19
Sept. 4	E	8.214	17.83	25.11
6		.209	17.95	25.03
19		.198	17.78	25.05
23		.273	17.95	25.03
1895.70	4	8.223	17.88	25.06

λ AQUARII.

	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
East	18	8.202	18.23	25.81
West	12	.202	18.05	25.35
East	4	.223	17.88	25.06
		8.205	−18.13	25.56
Flex.			+ .01	−.07
			−18.12	25.49
Sys. Red.		+.005	+ .02	
1895.0	34	22 47 8.210	−8 8 18.10	
Obs. − B. J.		+.039	+0.15	
Obs. − A. E.		−.024	−0.40	
Obs. − C. T.		+.17	−0.7	
Obs. − N. A.		+.037	+0.10	
Obs. − 303.		+.033	−0.65	

α PEGASI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	2.0	22 59 31.791	+14 38 25.29
A. E.		31.821	24.96
C. T.		31.74	25.8
N. A.		31.784	24.80

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 13	E	25.783	37 46.19	26.39
14		.821	46.28	26.02
15		.836	45.76	26.69
20		.827	46.82	26.27
22		.816	46.62	26.18
25		.813	46.86	26.09
Oct. 2		.810	46.56	25.68
3		.855	46.89	25.85
5		.823	45.81	26.72
10		.772	46.46	26.38
11		.800	46.61	26.15
12		.883	46.76	25.79
13		.838	46.45	26.73
17		.840	46.35	26.48
Nov. 3		.804	—	—
7		.793	46.19	26.01
8		.826	46.18	25.82
15		.803	[44.91]	—
21		.789	46.75	25.48
1893.77	19, 17	25.817	46.44	26.16

α PEGASI.

Date.	Obs.	Mean R. A.	Mean Decl.	φ
1894.		h m s	° ′ ″	″
July 16	E	28.779	38 6.29	25.00
18		.800	5.66	25.89
20		.820	5.52	26.41
23		.763	5.12	26.35
1894.55	4	28.790	5.65	25.91
Oct. 3	W	28.817	5.21	26.37
4		.755	5.63	25.64
5		.774	5.97	25.28
9		.777	5.49	26.15
10		.799	5.41	26.04
12		.759	5.59	26.02
16		.816	5.36	26.19
22		.732	5.48	26.39
1894.78	8	28.779	5.52	26.01
1895.				
Aug. 12	W	31.810	24.80	25.95
14		.777	24.89	25.95
16		.735	24.75	26.14
21		.787	24.62	26.29
1895.63	4	31.777	24.76	26.08
Sept. 4	E	31.801	24.72	26.10
6		.842	24.95	25.67
19		.773	25.01	25.80
23		.794	24.61	26.01
1895.70	4	31.802	24.82	25.89
East	23, 21	31.783	25.07	26.11
West	12	.768	24.81	26.03
East	4	.802	24.82	25.89
		31.780	24.95	26.06
Flex.			−.02	−.04
			24.93	26.02
Sys. Red.		−.002	−.05	
1895.0	39, 37	22 59 31.778	+14 38 24.88	
Obs. − B. J.		−.013	−0.41	
Obs. − A. E.		−.043	−0.08	
Obs. − C. T.		+.04	−0.9	
Obs. − N. A.		−.006	+0.08	

γ PISCIUM.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.0	23 11 43.282	+2 42 30.71
C. T.		43.24	30.3
N. A.		43.280	30.51
303.		43.276	31.05

Date.	Obs.	Mean R. A.	Mean Decl.	φ
1893.		h m s	° ′ ″	″
Sept. 13	E	37.101	41 51.35	26.05
Nov. 2		.083	51.78	25.32
3		.056	51.45	25.56
7		.126	50.92	26.10
8		.083	51.00	25.82
13		.037	51.16	25.48
14		.081	51.44	25.13
15		.107	50.97	—
21		.066	51.59	25.46
1893.85	9	37.082	51.30	25.61
East	9	43.298	30.55	25.61
Flex.			.00	−.06
			30.55	25.55
Sys. Red.		+.002	−.02	
1895.0	9	23 11 43.300	+2 42 30.53	
Obs. − B. J.		+.018	−0.18	
Obs. − C. T.		+.06	+0.2	
Obs. − N. A.		+.020	+0.02	
Obs. − 303.		+.024	−0.52	

κ PISCIUM.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	5.3	23 21 32.952	+0 40 50.53
C. T.		32.99	50.2
N. A.		32.953	50.34

Date.	Obs.	Mean R. A.	Mean Decl.	φ
1894.		h m s	° ′ ″	″
Oct. 3	W	29.898	31.32	25.15
4		.911	31.82	24.34
5		.882	31.54	24.60
9		.944	31.09	25.44
1894.76	4	29.909	31.44	24.88
1895.				
Sept. 4	E	32.976	50.35	25.71
19		.971	50.32	25.73
23		33.015	50.38	25.48
1895.71	3	32.987	50.35	25.64

κ PISCIUM.

	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
West	4	32.983	51.11	24.88
East	3	.987	50.35	25.64
		32.985	50.78	25.21
Flex.			.00	−.06
			50.78	25.15
Sys. Red.		+.005	+.04	
1895.0	7	23 21 32.990	+0 40 50.82	
Obs. − B. J.		+.038	+0.29	
Obs. − C. T.		.00	+0.6	
Obs. − N. A.		+.037	+0.48	

ι PISCIUM.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4 3	23 34 32.942	+5 3 25.44
A. E.		32.976	25.82
C. T.		32.95	25.8
N. A.		32.910	25.53
303.		32.934	25.87

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 2	E.	26.854	2 46.95	25.11
3		.729	47.24	25.32
5		.788	46.59	25.76
10		.762	46.82	25.84
Nov. 2		.753	46.52	25.58
3		.793	46.59	25.42
13		.741	46.68	24.96
14		.785	46.83	24.74
1893.81	8	26.776	46.78	25.34
1894.				
Oct. 25	W	29.879	3 6.26	25.02
29		.835	6.14	25.29
Nov. 5		.900	6.54	24.97
6		.859	5.95	25.45
1894.84	4	29.868	6.22	25.18
East	8	32.942	25.76	25.34
West	4	.951	25.71	25.18
		32.945	25.74	25.29
Flex.			.00	−.05
			25.74	25.24
Sys. Red.		.000	+.04	
1895.0	12	23 34 32.945	+5 3 25.78	
Obs. − B. J.		+.003	+0.34	
Obs. − A. E.		−.031	−0.04	
Obs. − C. T.		−.01	.00	
Obs. − N. A.		+.035	+0.25	
Obs. − 303.		+.011	−0.09	

ω PISCIUM.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	23 53 55.122	+6 16 55.21
A. E.		55.164	55.08
C. T.		55.07	55.1
N. A.		55.094	54.85

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 2	E	48.957	15.04	25.93
3		49.012	14.89	25.99
7		.011	15.22	25.67
8		.939	15.49	25.20
13		.991	15.44	25.07
14		.954	15.37	25.76
15		.998	15.92	——
21		.986	15.44	25.48
1893.86	8	48.981	15.35	25.59
1894.				
Oct. 10	W	52.021	35.06	25.69
12		.057	35.10	25.81
16		.047	35.35	25.50
22		.092	34.80	26.37
25		.060	35.15	25.43
29		.027	35.32	25.43
Nov. 5		.064	35.27	25.56
6		.053	34.22	26.50
1894.81	8	52.053	35.03	25.79
1895.				
Sept. 4	E	55.116	55.03	25.71
6		.116	55.16	25.38
19		.111	55.29	25.44
23		.079	54.87	25.69
Oct. 1		.126	54.88	25.41
7		.107	54.93	26.05
9		.131	55.01	25.70
24		.132	55.40	25.27
1895.74	8	55.115	55.07	25.58
East	8	55.135	55.23	25.59
West	8	.130	54.97	25.79
East	8	.115	55.07	25.58
		55.127	55.09	25.65
Flex.			−.01	−.05
			55.08	25.60
Sys. Red.		+.001	−.02	
1895.0	24	23 53 55.128	+6 16 55.06	
Obs. − B. J.		+.006	−0.15	
Obs. − A. E.		−.036	−0.02	
Obs. − C. T.		+.06	0.0	
Obs. − N. A.		+.034	+0.21	

TABLE XI. The comparison of the observed places, with the various Ephemerides, is given in the following table. The list of 303 stars is included.

The average residuals are taken out, with no allowance for the systematic differences between the B. J. system, and other Ephemerides.

The places, as reduced, are virtually independent, for any star, of its use as a fundamental. But the B. J. proper motions have been included in the reduction. The epoch of observation will not differ much, in general, from the epoch of reduction, 1895.0.

The observed Latitude, from B. J. Declinations, is included. For this, and the observed Declinations, also, the flexure correction has been applied.

TABLE XI.—OBSERVED PLACES OF B. J. EQUATORIAL STARS. COMPARISON WITH EPHEMERIDES.

Star.	R. A. 1895.0.			Decl. 1895.0.			Obs.		φ	Obs.* – B. J.		Obs. – A. E.		Obs. – C. T.		Obs. – N. A.		Obs. – 303.	
	h	m	s	°	′	″	E	W	″	s	″	s	″	s	″	s	″	s	″
γ Pegasi	0	7	49.666	+14	35	58.87	8	4	25.64	−.029	−0.30	−.042	−0.29	+.05	−0.3	+.012	+0.07	. .	. .
12 Ceti	0	24	40.812	− 4	32	15.41	8	4	25.93	+.005	−0.14	+.018	−0.62	+.10	−1.2	+.054	+0.01	+.006	−0.71
ϵ Piscium	0	57	29.573	+ 7	19	29.20	7	4	26.08	+.003	−0.30	−.012	+0.07	−.06	+0.5	+.027	+0.39	. .	. .
ζ Ceti	1	18	46.486	− 8	43	31.46	4	8	26.22	−.006	−0.59	+.011	−0.62	+.06	−1.0	+.058	−0.47	+.006	−0.99
ν Piscium	1	35	57.981	+ 4	57	21.97	8	..	25.73	+.027	−0.26	−.020	−0.27	+.09	−0.3	+.051	−0.27	+.030	−0.26
ξ Piscium	1	48	7.128	+ 2	40	8.80	16	8	25.24	−.015	+0.27	. .	. .	. .	. .	. .	. .	−.001	−0.05
o Ceti*	2	14	2.516	− 3	27	16.66	3	8	25.16	+.059	+0.39	. .	. .	−.01	−0.8	. .	. .	+.047	−0.71
ξ 2 Ceti	2	22	34.517	+ 7	59	21.31	16	8	25.57	−.002	−0.13	−.042	+0.14	+.06	−0.2	+.030	−0.03	. .	. .
δ Ceti	2	34	5.976	− 0	7	28.53	12	..	24.81	−.034	+0.64	−.058	+0.67	. .	. .	. .	. .	−.009	−0.32
η Eridani	2	51	17.837	− 9	18	58.71	4	3	25.72	−.003	−0.28	. .	. .	. .	. .	. .	. .	+.010	−0.77
α Ceti	2	56	47.412	+ 3	40	39.70	..	4	25.26	+.058	+0.27	+.019	+0.36	+.06	+0.7	+.066	+0.29	+.053	−0.28
o Tauri	3	19	9.692	+ 8	39	32.96	12	8	25.47	−.033	+0.06	. .	. .	. .	. .	+.013	+0.29	. .	. .
ϵ Eridani	3	27	59.008	− 9	48	50.13	9	4	25.04	+.047	+0.55	+.029	−1.05	−.04	+1.9	+.068	+0.39	+.027	−0.37
ν Tauri	3	57	34.184	+ 5	41	52.18	8	4	25.17	−.038	+0.63	. .	. .	. .	. .	. .	. .	−.015	−0.13
o 1 Eridani	4	6	44.345	− 7	6	41.88	4	4	25.68	−.044	−0.17	−.041	+0.10	. .	. .	+.036	+0.57	−.017	−0.20
ν Eridani	4	31	4.331	− 3	34	2.65	4	4	25.94	+.060	−0.26	. .	. .	. .	. .	. .	. .	+.041	−0.41
μ Eridani	4	40	15.107	− 3	26	50.74	3	..	25.94	+.025	−0.22	. .	. .	. .	. .	+.037	+0.15	+.016	−0.57
π 5 Orionis	4	48	46.859	+ 2	16	6.38	8	4	25.52	−.047	+0.19	. .	. .	. .	. .	. .	. .	−.030	−0.78
β Eridani	5	2	41.259	− 5	13	20.99	12	4	26.13	+.013	−0.49	+.001	−0.51	. .	. .	. .	. .	+.015	−0.55
β Orionis	5	9	29.431	− 8	19	23.89	4	..	25.65	−.029	−0.13	−.053	−0.41	−.04	−0.1	−.027	−0.21	+.009	−1.21
γ Orionis	5	19	29.939	+ 6	15	15.47	12	..	25.47	+.039	+0.26	. .	. .	−.07	−0.1	. .	. .	. .	. .
ϵ Orionis	5	30	53.090	− 1	16	9.38	..	8	25.96	+.024	−0.16	−.015	−0.14	−.02	+0.4	+.028	−0.42	+.006	−0.82
κ Orionis	5	42	46.585	− 9	42	26.23	8	12	26.14	+.048	−0.37	+.020	−0.37	. .	. .	+.040	+0.09	+.045	−1.01
ν Orionis	6	1	34.587	+14	46	50.17	4	8	26.27	−.018	−0.54	−.094	−0.19	−.04	−0.6	+.028	−0.46	. .	. .
8 Monocerotis	6	18	12.236	+ 4	38	45.39	8	8	25.47	−.042	+0.35	. .	. .	. .	. .	. .	. .	. .	. .
S Monocerotis	6	35	11.705	+ 9	59	33.24	12	8	25.85	−.037	+0.08	. .	. .	. .	. .	. .	. .	. .	. .

*Obs. mag., 8.7.

Star.	R. A. 1895.0.			Decl. 1895.0.			Obs.		φ	Obs. – B. J.		Obs. – A. E.		Obs. – C. T.		Obs. – N. A.		Obs. – 303.	
	h	*m*	*s*	°	′	″	E	W	″	*s*	″	*s*	″	*s*	″	*s*	″	*s*	″
18 Monocerotis	6	42	23.148	+ 2	31	36.77	19	12	25.27	−.009	+0.71							+.003	−0.04
λ Geminorum	7	12	3.497	+16	43	45.96	12	8	26.28	−.040	−0.58								
β Canis Min.	7	21	27.384	+ 8	30	2.42	4	4	25.89	−.022	−0.13	−.068	+0.36	−.02	−0.3	+.010	+0.31		
25 Monocerotis	7	32	3.450	− 3	52	36.48	12	4	25.97	(+.109)	−0.05							−.007	−0.70
β Cancri	8	10	49.234	+ 9	30	32.06	..	4	26.13	−.027	−0.09	−.038	+0.32	−.06	0.0	+.008	+0.24		
Br. 1197	8	20	24.831	− 3	33	50.84	12	12	26.41	+.022	−0.53	+.009	−0.53					+.001	−0.95
ε Hydrae	8	41	12.923	+ 6	48	14.22	4	3	26.22	−.027	−0.07	−.054	+0.42	−.07	−0.1	−.010	+0.30		
α Cancri	8	52	44.693	+12	15	50.30	7	3	25.89	+.016	−0.19			+.03	0.0	−.015	+0.09		
ζ Hydrae	9	8	54.097	+ 2	45	25.67	8	9	25.62	.000	+0.24	−.042	+0.40					+.015	−0.47
ο Leonis	9	35	32.810	+10	22	11.35	11	12	26.14	−.021	−0.38	−.006	−0.10	+.07	−0.4	+.013	+0.03		
6 Sextantis	9	45	56.585	− 3	45	5.21	8	9	26.07	−.017	−0.29							+.019	−0.82
π Leonis	9	54	39.890	+ 8	32	52.52	15	11	25.52	+.003	+0.11	−.009	+0.22	−.04	+0.5	+.018	+0.68		
1 Leonis	10	43	44.282	+11	6	2.59	12	8	25.56	−.029	+0.09	−.054	+0.05	+.02	−0.5	+.017	+0.01		
χ Leonis	10	59	36.064	+ 7	54	13.25	13	8	25.68	+.039	−0.02			+.04	+0.7	+.017	+0.46		
σ Leonis	11	15	43.324	+ 6	36	17.26	13	4	25.35	−.023	+0.24								
υ Leonis	11	31	34.369	− 0	14	38.83	4	4	25.60	+.041	−0.21	+.010	+0.08	+.07	+0.6	+.059	−0.06		
β Virginis	11	45	13.525	+ 2	21	23.09	4	3	25.37	+.015	+0.09			−.01	+0.9			+.009	−0.39
ο Virginis	11	59	51.624	+ 9	18	58.01	5	12	25.63	−.015	−0.09	−.003	−0.05	−.05	+0.3				
η Virginis	12	14	32.008	− 0	4	59.72	7	8	25.09	+.008	+0.53	−.035	+0.40	+.03	+0.3	+.037	+0.01	+.008	+0.06
γ Virginis m.	12	36	20.349	− 0	52	24.85	4	..	25.23	−.016	+0.08	−.053	+0.60						
δ Virginis	12	50	18.820	+ 3	58	5.29	7	4	25.54	+.017	+0.10			−.03	+0.9	+.017	+0.40	+.020	0.00
ε Virginis	12	56	56.947	+11	31	24.57	10	10	25.65	−.057	−0.08	−.096	+0.02			−.023	+0.13		
9 Virginis	13	4	30.762	− 4	58	42.19	15	13	25.62	+.027	+0.01	+.006	+0.27	+.01	+0.2	+.015	+0.56	+.016	−0.24
ξ Virginis	13	29	20.509	− 0	3	32.60	13	3	25.99	−.008	−0.41	−.033	−0.12	−.03	−1.1	+.008	−0.48	−.002	−0.83
τ Virginis	13	56	18.111	+ 2	3	9.82	7	5	24.76	+.001	+0.83			+.01	+0.8	+.022	+0.02	−.005	−0.36
ι Virginis	14	10	30.460	− 5	29	58.11	1	6	25.46	+.042	−0.03							+.020	−0.40
φ Virginis	14	22	47.475	− 1	45	25.68	..	4	25.33	−.015	+0.33							−.006	−0.29
μ Virginis	14	37	31.549	− 5	12	5.60	8	7	25.37	+.012	+0.18							+.005	−0.25
P. XIV 221	14	51	15.827	+14	52	14.50	4	4	26.23	−.059	−0.70								
β Librae	15	11	21.331	− 8	59	43.23	12	7	25.51	−.018	+0.17	−.034	+0.28	−.01	−0.5	+.010	+0.30	−.008	−0.39
α Serpentis	15	39	5.720	+ 6	45	22.17	8	8	25.22	−.001	+0.37	−.026	+0.65	+.03	−0.3	+.035	+0.31		
ε Serpentis	15	45	34.867	+ 4	47	38.18	12	4	25.28	+.017	+0.39	−.038	−0.11			+.030	+0.13	+.004	+0.10
δ Ophiuchi	16	8	50.507	− 3	25	25.80	4	1	25.86	−.015	−0.11	−.055	−0.16	+.02	−1.4	+.017	−0.07	−.015	−0.62
ζ Ophiuchi	16	31	22.575	−10	21	15.39	12	8	25.75	+.011	−0.08	−.024	−0.11			+.039	−0.04	+.022	−0.70
κ Ophiuchi	16	52	41.852	+ 9	32	18.22	12	11	26.00	+.010	−0.40	−.041	−0.23	+.07	−1.4	+.028	+0.43		
α Herculis	17	9	51.544	+14	30	36.76	8	4	24.99	−.009	+0.67	−.029	+0.29	+.03	−0.4	+.019	+0.53		
α Ophiuchi	17	30	3.567	+12	38	11.90	8	8	25.53	−.022	+0.10	−.047	+0.25	+.04	−0.8	−.005	+0.49		
β Ophiuchi	17	38	17.092	+ 4	36	41.01	16	12	25.54	+.003	+0.08			+.10	−0.8	+.020	+0.62	−.004	−0.04
ν Ophiuchi	17	53	14.738	− 9	45	37.62	17	16	26.46	+.010	−0.83			.00	−0.4			+.015	−0.70
72 Ophiuchi	18	2	22.256	+ 9	32	56.82	4	4	25.75	−.008	+0.18					+.002	+0.70		
η Serpentis	18	15	52.599	− 2	55	33.25	8	..	26.35	+.059	−0.48	+.011	−1.11	+.03	−1.5	+.066	+0.01	+.036	−0.71
λ Aquilae	19	0	40.584	− 5	2	23.46	22	9	25.64	+.024	−0.01			+.03	−1.2			+.003	−0.81
ω Aquilae	19	12	53.242	+11	24	22.33	18	4	25.61	−.022	+0.03			+.06	−0.7	+.009	+0.46		
δ Aquilae	19	20	12.227	+ 2	54	20.16	18	11	25.38	−.011	+0.31	−.027	+0.15	+.07	−0.6	+.025	+0.04	−.006	−0.47

Star.	R. A. 1895.0.			Decl. 1895.0.			Obs.		φ	Obs. – B. J.		Obs. – A. E.		Obs. – C. T.		Obs. – N. A.		Obs. – 303.	
	h	m	s	°	′	″	E	W	″	s	″	s	″	s	″	s	″	s	″
γ Aquilae	19	41	16.026	+10	21	26.97	15	16	25.63	−.018	−0.01	−.045	+0.08	+.04	−0.8	+.001	+0.53	. .	. .
β Aquilae	19	50	9.294	+ 6	8	41.00	4	4	25.23	−.007	+0.35	−.043	+0.69	+.03	0.0	+.036	+0.14	. .	. .
9 Aquilae	20	5	53.234	− 1	7	58.21	5	8	25.65	+.045	+0.02	+.028	+0.16	+.07	−0.6	+.051	−0.38	+.027	−0.29
ε Delphini	20	28	11.785	+10	56	47.43	11	8	25.36	+.002	+0.30	−.042	−0.27	. .	. .	+.025	+0.84	. .	. .
ε Aquarii	20	41	59.534	− 9	52	48.26	8	5	25.46	+.023	+0.18	. .	. .	. .	. .	+.027	+0.11	+.021	−0.50
α Equulei	21	10	34.500	+ 4	48	49.75	8	5	25.75	+.019	+0.03	. .	. .	. .	. .	. .	. .	+.016	−0.38
ε Pegasi	21	39	1.702	+ 9	23	37.04	22	13	25.78	−.030	−0.14	−.057	−0.05	−.03	−0.8	+.002	+0.33	. .	. .
20 Pegasi	21	55	58.385	+12	37	1.23	8	8	25.15	−.058	+0.48	. .	. .	. .	. .	. .	. .	. .	. .
9 Aquarii	22	11	17.586	− 8	18	22.07	3	4	25.78	−.007	−0.13	−.010	−0.15	+.05	−0.6	+.031	+0.15	+.019	−0.61
γ Aquarii	22	16	13.967	− 1	54	59.07	9	12	25.61	+.006	+0.02	+.002	+0.04	−.01	−0.5	+.015	−0.04	.000	−0.31
λ Aquarii	22	47	8.210	− 8	8	18.10	22	12	25.49	+.039	+0.15	−.024	−0.40	+.17	−0.7	+.037	+0.10	+.033	−0.65
α Pegasi	22	59	31.778	+14	38	24.88	27	12	26.02	−.013	−0.41	−.043	−0.08	+.04	−0.9	−.006	+0.08	. .	. .
γ Piscium	23	11	43.300	+ 2	42	30.53	9	..	25.55	+.018	−0.18	. .	. .	+.06	+0.2	+.020	+0.02	+.024	−0.52
κ Piscium	23	21	32.990	+ 0	40	50.82	3	4	25.15	+.038	+0.29	. .	. .	.00	+0.6	+.037	+0.48	+.008	−0.24
ι Piscium	23	34	32.945	+ 5	3	25.78	8	4	25.24	+.003	+0.34	−.031	−0.04	−.01	0.0	+.035	+0.25	+.011	−0.09
ω Piscium	23	53	55.128	+ 6	16	55.06	16	8	25.60	+.006	−0.15	−.036	−0.02	+.06	0.0	+.034	+0.21	. .	. .

No. obs., 787 551

Mean φ, 37° 20′ 25″.64

Average v, one star, ±0 .29

Mean Δ Obs. – B. J., 85 stars (1 omitted), ˢ.000 0″.00

Average residual v from mean Δ, ± .023 ±0 .27

Mean Δ Obs. – A. E., 51 stars, −ˢ.027 −0″.02

Average residual v from mean Δ, ± .023 ±0 .30

Mean Δ Obs. – C. T., 53 stars, +ˢ.020 −″0.24

Average residual v from mean Δ, ± .04 ± 0.5

Mean Δ Obs. – N. A., 57 stars, +ˢ.024 +0″.17

Average residual v from mean Δ, ± .016 ±0 .24

Mean Δ Obs. – 303, 50 stars, +ˢ.011 −0″.47

Average residual v from mean Δ, ± .013 ±0 .25

The mean differences may now be compared with the Ephemeris differences of Table I, which includes all the fundamentals used:

TABLE I.	$\Delta\alpha$	$\Delta\delta$
B. J. – A. E.	−ˢ.026	+0″.05
B. J. – C. T.	+ .015	−0 .22
B. J. – N. A.	+ .021	+0 .18
B. J. – 303.	.000	−0 .51

TABLE XI.	$\Delta\alpha$	$\Delta\delta$
Obs. – A. E.	−ˢ.027	−0″.02
Obs. – C. T.	+ .020	−0 .24
Obs. – N. A.	+ .024	+0 .17
Obs. – 303.	+ .011	−0 .47

TABLE XII. Owing to the method of observing, in programs of from four to six hours, the differences, (Obs.—B. J.), must fall into groups of corresponding length; and hence any discussion of these results, with respect to R. A., would be unprofitable. In the discussion of the Latitude results, Table XXIV, the Declinations of the fundamentals will be compared in such a manner as to be independent of the differential reduction.

With respect to Declination, the results of the preceding table are combined in groups of 5° in the following table:

TABLE XII.—COMPARISON OF OBSERVED PLACES, WITH EPHEMERIDES. 5° GROUPS.

Obs. – B. J.				Obs. – A. E.				Obs. – C. T.				Obs. – N. A.				Obs. – 303.			
δ	No.	Δα	Δδ	δ	No.	Δα	Δδ	δ	No.	Δα	Δδ	δ	No.	Δα	Δδ	δ	No.	Δα	Δδ
°		s	″	°		s	″	°		s	″	°		s	″	°		s	″
+12.9	15	−.025	−0.10	+12.5	10	−.050	−0.02	+12.7	10	+.038	−0.53	+12.4	12	+.006	+0.23				
+ 7.8	20	−.008	+0.06	+ 7.8	13	−.035	+0.19	+ 7.7	15	−.008	−0.08	+ 7.9	15	+.019	+0.33				
+ 3.3	16	+.006	+0.23	+ 3.8	5	−.022	+0.11	+ 3.1	9	+.039	+0.27	+ 3.4	9	+.032	+0.19	+3.4	17	+.008	−0.26
− 2.3	18	+.015	−0.04	− 1.9	13	−.013	−0.03	− 2.2	11	+.024	−0.51	− 2.2	11	+.035	−0.06	−2.6	17	+.011	−0.55
− 8.1	16	+.010	−0.12	− 8.5	10	−.013	−0.26	− 8.4	8	+.027	−0.32	− 8.9	10	+.032	+0.10	−8.1	16	+.012	−0.61
+ 2.7	85	.000	0.00	+ 2.7	51	−.027	0.00	+ 2.6	53	+.024	−0.23	+ 2.5	57	+.025	+0.16	−2.4	50	+.010	−0.47
		v	±.013	±0.11		v	±.013	±0.12		v	±.013	±0.26		v	±.010	±0.11		v	±.002	±0.14

This combination exhibits variations with the Declinations, in Δα, for B. J., A. E., and N. A. These variations may be expressed as follows, with the new residuals, v (Obs.—Comp.), taken for the groups:

Obs. – B. J., Δα ˢ.000 at +2°.7. Rate, −ˢ.0017 per degree. v (Obs.—Comp.), ±ˢ.005
Obs. – A. E., Δα − .027 " +2 .7. " − .0017 " v " ± .005
Obs. – N. A., Δα + .024 " +2 .5. " − .0013 " v " ± .005

The variation of Δδ for 303 is evident, but as the arc is short, the results may better be combined with further material, Table XVIII.

For A. E. and N. A. the variation of Δδ may be expressed:

Obs. – A. E., Δδ 0″.00 at +2°.7. Rate, +″.014 per degree. v (Obs.—Comp.), ±0″.11
Obs. – N. A., Δδ +0 .16 " +2 .5. " + .012 " v " ±0 .08

LIST 2. RESULTS OF OBSERVATION OF **B. J.** CIRCUMPOLAR STARS.

The transits of these stars have been used for the determination of Azimuth. Since, however, six stars (three at each culmination) have generally been observed each night, and the value of a, thus obtained, has been controlled by the reading of the MIRE, the effect upon individual determinations of Right Ascension is not large.

The B. J. proper motions have been included in the reductions. Except for this factor, the determinations of Declination are, in all respects, independent of the B. J. places of these stars.

The observations at each culmination have been combined, strictly, according to the number, without reference to the position of the instrument, Circle East or West, nor to the year. But the final place is the direct mean, or half sum, of the results at upper and lower culminations.

Where Declinations have been observed at one culmination only, the corrections: U. C. $-0''.10$ and L. C. $+0''.10$, have been applied. This is the final "Systematic Correction," in the results which follow, and has been applied for 4 stars at U. C. and 9 stars at L. C.

The mean results have been corrected for flexure. No Systematic Correction has been applied to Right Ascensions. Reference may be made to Tables XIII and XX for details of observed systematic differences.

There have been omitted, from the mean results, on account of large residuals, but two determinations of R. A.—one each for δ Urs. Min. and λ Urs. Min.

In Zenith Distance, but one determination at U. C. of Declination and φ, has been omitted, 51 H. Cephei. The determinations at L. C. are, naturally, less exact; and 7 have been omitted, with one extra φ omitted for β Cephei. These rejections appear to be justified, and, in Zenith Distance, amount to less than one per cent.

No effort has been made to determine these places, with uniform number, or distribution of observations. Such stars were included in each program, as were required for the determination of Azimuth, and as did not conflict with the stars of the list to be determined. But, all the closer circumpolars were taken, by preference, as often as the arrangement of the program permitted. For 32 stars, observed at both culminations, there is an average of 26 observations. For all 45 stars observed, there is an average of 21; or of 12 for one culmination. There are 979 observations included in this series; those upon broken, or incomplete nights, having been omitted. The combined comparison, with the Ephemerides, follows the series, in Table XIII.

21 CASSIOPEIAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	6.0	0 38 42.849	74 24 50.42
A. E.		42.533	50.81

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 2	E	35.13	10.88	25.67
3		34.92	11.58	25.47
5		35.09	10.84	26.00
10		35.07	12.25	24.90
11		35.23	11.29	25.78
12		35.17	11.45	25.41
13		35.13	11.91	25.88
17		35.07	11.70	25.44
1893.78	8	35.101	11.49	25.53
1894.	U. C.			
Oct. 10	W	38.96	30.96	25.21
12		38.95	30.75	25.58
16		38.96	31.15	25.12
22		38.91	31.15	25.44
1894.79	4	38.945	31.00	25.34
1895.	U. C.			
Oct. 1	E	42.93	49.79	25.71
7		42.99	50.22	25.97
9		43.05	50.29	25.63
24		42.93	49.49	26.39
1895.78	4	42.975	49.95	25.92
East	8	42.838	50.96	25.53
West	4	.814	50.73	25.34
East	4	.975	49.95	25.92
		42.866	50.65	25.58
Flex.			.12	+.06
U. C.	16	0 38 42.866	74 24 50.53	25.64

21 CASSIOPEIAE.

Date. 1894.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 3	E	39.06	29.47	24.18
4		39.02	29.90	24.80
5		38.93	29.04	24.27
1894.26	3	39.003	29.47	24.42
1895.	L. C.			
Apr. 10	W	42.82	49.77	24.94
11		42.83	50.98	26.20
15		42.76	51.25	26.35
17		42.81	49.86	25.15
18		42.78	51.13	26.00
22		42.82	51.46	26.13
May 7		42.85	49.76	25.04
8		42.79	49.79	24.96
1895.31	8	42.808	50.50	25.60
East	3	42.872	49.20	24.42
West	8	.808	50.50	25.60
		42.846	50.15	25.28
Flex.			+.15	+.09
L. C.	11	0 38 42.846	74 24 50.30	25.37
U. C.	16	42.866	50.53	25.64
L. C.	11	.825	50.30	25.37
Mean		0 38 42.846	74 24 50.42	25.51
Obs. – B. J.		−.003	0.00	
Obs. – A. E.		+.313	−0.39	
Sec. δ 3.7				

43 H. CEPHEI.

Cat.	Mag.	R. A. 1895.0	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.3	0 54 24.647	85 41 37.45
A. E.		24.584	37.49

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 2	E	9.59	40 58.22	25.91
3		9.89	58.15	25.89
13		9.79	57.96	25.71
14		10.12	58.57	25.72
1893.86	4	9.848	58.22	25.81
1894.	U. C.			
Oct. 3	W	17.16	41 18.16	25.43
4		17.44	18.04	25.24
5		17.40	18.02	25.24
9		17.22	17.82	25.83
1894.76	4	17.305	18.01	25.43
East	4	24.454	37.18	25.81
West	4	.615	37.48	25.43
		24.534	37.33	25.62
Flex.			−.13	+.07
U. C.	8	0 54 24.534	85 41 37.20	25.69
1895.	L. C.			
Mar. 4	W	25.26	36.64	24.87
Apr. 2		24.52	36.94	25.20
5		24.48	36.63	25.32
8		24.74	36.78	24.67
1895.24	4	24.750	36.75	25.01
1896.	L. C.			
Mar. 10	E	32.34	56.74	25.51
12		31.77	57.72	26.36
May 7		31.81	56.96	25.58
11		32.01	56.49	25.47
1896.28	4	31.982	56.98	25.73
West	4	24.750	36.75	25.01
East	4	.658	37.50	25.73
		24.704	37.12	25.37
Flex.			+.14	+.08
L. C.	8	0 54 24.704	85 41 37.26	25.45
U. C.	8	24.534	37.20	25.69
L. C.	8	.704	37.26	25.45
Mean		0 54 24.619	85 41 37.23	25.57
Obs. − B. J.		−.028	−0.22	
Obs. − A. E.		+.035	−0.26	
Sec. δ 13.5				

α URSAE MINORIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	2.0	1 20 29.805	88 44 52.65
A. E.		30.074	52.68
C. T.		28.52	52.9
N. A.		28.621	52.67

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Dec. 6	E	19 42.06	14.44	25.97
11		41.94	14.88	25.72
19		40.30	15.72	25.01
29		40.83	——	——
1893.96	4, 3	41.282	15.01	25.57
1894.	U. C.			
Oct. 25	W	20 4.01	33.88	25.27
29		4.51	33.99	25.31
Nov. 5		3.95	33.53	25.85
6		5.05	33.21	26.06
1894.84	4	4.380	33.65	25.62
East	4, 3	29.395	52.68	25.57
West	4	28.531	52.48	25.62
		28.963	52.57	25.60
Flex.			−.14	+.08
U. C.	8, 7	1 20 28.963	88 44 52.43	25.68
1894.	L. C.			
Apr. 9	E	5.93	33.49	25.25
16		5.60	——	——
17		5.35	32.78	24.63
18		6.05	——	——
30		5.59	32.92	24.68
May 2		5.69	33.84	25.74
7		6.03	33.34	25.02
9		5.60	[31.87]	[23.92]
22		5.82	33.61	25.76
23		5.25	33.08	24.84
June 8		5.49	33.81	25.60
19		5.68	33.80	25.65
1894.38	12, 9	5.673	33.41	25.24
1895.	L. C.			
May 13	W	29.74	53.01	26.05
14		29.74	52.61	25.40
16		29.46	52.29	25.44
17		30.20	52.42	25.52
1895.37	4	29.785	52.58	25.60

α URSAE MINORIS.

	Obs.	Mean R. A.			Mean Decl.			φ
		h	m	s	°	′	″	″
East	12, 9			29.824			52.24	25.24
West	4			29.785			52.58	25.60
				29.814			52.34	25.34
Flex.							+.14	+.08
L. C.	16, 13	1	20	29.814	88	44	52.48	25.42
U. C.	8, 7			28.963			52.43	25.68
L. C.	16, 13			29.814			52.48	25.42
Mean		1	20	29.389	88	44	52.46	25.55
Obs. – B. J.				–.416			–0.19	
Obs. – A. E.				–.685			–0.22	
Obs. – C. T.				+.87			–0.4	
Obs. – N. A.				+.768			–0.21	
Sec. δ 45.5								

40 CASSIOPEIAE.

Cat.	Mag.	R. A. 1895.0.			Decl. 1895.0.		
		h	m	s	°	′	″
B. J.	5.6	1	30	7.403	72	30	16.88

Date.	Obs.	Mean R. A.			Mean Decl.			φ
1895.	L. C.	h	m	s	°	′	″	″
Apr. 10	W			7.37			15.48	24.19
11				7.44			17.13	25.89
15				7.36			16.66	25.30
17				7.46			16.37	25.10
1895.28	4			7.407			16.41	25.12
Flex.							+.15	+.09
L. C.	4	1	30	7.407	72	30	16.56	25.21
Sys. Corr.							+.10	
							16.66	
Obs. – B. J.				+.004			–0.22	
Sec. δ 3.3								

50 CASSIOPEIAE.

B. J.	4.0	1	54	28.054	+71	54	46.70	
A. E.				27.926			47.08	

Date.	Obs.	Mean R. A.			Mean Decl.			φ
1893.	U. C.	h	m	s	°	′	″	″
Nov. 7	E			17.90			11.79	25.22
8				17.75			10.98	25.83
15				17.96			10.22	——
21				17.91			11.25	25.79
1893.87	4			17.880			11.06	25.61
1894.	U. C.							
Oct. 10	W			22.92			29.68	24.88
12				22.97			29.16	25.56
16				22.86			29.08	25.58
22				23.00			29.69	25.29
Nov. 8				23.10			28.84	25.80
14				23.04			29.03	25.48
16				22.90			29.41	25.43
19				22.98			29.06	25.55
1894.83	8			22.971			29.24	25.45
1895.	U. C.							
Oct. 1	E			28.05			46.57	25.21
7				28.01			46.80	25.67
9				27.99			46.71	25.49
24				28.09			46.30	25.86
1895.78	4			28.035			46.59	25.56
East	4			27.921			46.31	25.61
West	8			.992			46.86	25.45
East	4			28.035			46.59	25.56
				27.985			46.66	25.51
Flex.							–.11	+.06
U. C.	16	1	54	27.985	71	54	46.55	25.57
1895.	L. C.							
Apr. 18	W			27.86			45.95	24.53
22				27.94			46.28	24.67
May 7				27.90			45.13	24.13
8				28.03			45.71	24.60
1895.33	4			27.932			45.77	24.48
Flex.							+.15	+.09
L. C.	4	1	54	27.932	71	54	45.92	24.57
U. C.	16			27.985			46.55	25.57
L. C.	4			.932			45.92	24.57
Mean		1	54	27.959	71	54	46.24	25.07
Obs. – B. J.				–.095			–0.46	
Obs. – A. E.				+.033			–0.84	
Sec. δ 3.2								

36 H. CASSIOPEIAE.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	5.6	2 28 3.098	72 21 31.33

Date. 1893.	Obs. U. C.	Mean R. A. *h m s*	Mean Decl. ″	φ
Nov. 2	E	27 51.71	20 58.84	26.07
3		51.82	59.55	25.27
7		51.67	59.03	25.80
8		51.67	59.10	25.53
13		51.69	59.29	25.16
14		51.70	59.63	25.44
15		51.73	58.82	——
21		51.63	59.17	25.69
1893.86	8	51.702	59.18	25.57
Flex.			−.12	+.06
			59.06	
U. C.	8	2 28 2.895	72 21 31.12	25.63
1894.	L. C.			
Apr. 9	E	27 57.28	14.47	24.75
16		57.44	14.41	24.31
17		57.26	14.76	25.13
18		57.32	14.78	24.47
May 22		57.24	14.98	25.65
23		57.39	14.89	25.17
June 19		57.39	15.41	25.78
1894.34	7	57.331	14.81	25.04
1895.	L. C.			
May 13	W	28 2.98	31.78	26.14
14		3.09	32.07	26.18
16		2.93	31.35	25.82
17		2.77	30.50	24.92
21		2.90	30.55	25.25
22		2.96	30.45	24.84
23		2.87	30.82	25.58
29		2.90	30.89	25.76
1895.37	8	2.925	31.05	25.56
East	7	2.929	30.84	25.04
West	8	.925	31.05	25.56
		2.927	30.95	25.32
Flex.			+.15	+.09
L. C.	15	2 28 2.927	72 21 31.10	25.41
U. C.	8	2.895	31.12	25.63
L. C.	15	.927	31.10	25.41
Mean		2 28 2.911	72 21 31.11	25.52
Obs. − B. J.		−.187	−0.22	
Sec. δ 3.3				

47 H. CEPHEI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	6.0	2 52 7.930	79 0 12.32
A. E.		7.508	11.56

Date. 1894.	Obs. L. C.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″
June 20	E	51 59.70	78 59 57.79	25.63
21		59.99	57.37	24.86
25		59.97	56.65	24.38
26		60.00	57.59	25.31
1894.48	4	59.915	57.35	25.04
Flex.			+.15	+.09
			57.50	
L. C.	4	2 52 7.669	79 0 12.18	25.13
Sys. Corr.			+.10	
			12.28	
Obs. − B. J.		−.261	−0.04	
Obs. − A. E.		+.161	+0.72	
Sec. δ 16.1				

48 H. CEPHEI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	6.1	3 6 59.683	77 20 54.76
A. E.		59.787	54.52

Date. 1894.	Obs. L. C.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″
Apr. 30	E	52.55	——	——
May 2		52.51	——	——
7		52.29	——	——
9		52.54	——	——
1894.33	4, 0	52.472		
1895.	L. C.			
Apr. 18	W	59.81	54.24	24.76
22		59.92	55.43	25.76
May 7		60.04	54.39	25.33
8		59.98	53.83	24.66
1895.33	4	59.937	54.47	25.13
East	4, 0	59.883	——	——
West	4	.937	54.47	25.13
		59.910		
Flex.			+.15	+.09
L. C.	8, 4	3 6 59.910	77 20 54.62	25.22
Sys. Corr.			+.10	
			54.72	
Obs. − B. J.		+.227	−0.04	
Obs. − A. E.		+.123	+0.20	
Sec. δ 4.5				

5 H. CAMELOPARDALIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.3	3 39 16.313	71 0 29.61
A. E.		16.337	29.63

Date.	Obs.	Mean R. A.	Mean Decl.	φ
1893.	U. C.	h m s	° ′ ″	″
Dec. 9	E	3.87	7.15	25.38
1894.				
Jan. 10		10.22	18.41	25.59
11		10.11	17.87	26.07
12		10.25	18.30	25.40
1894.03	3	10.193	18.19	25.69
1894.	U. C.			
Oct. 25	W	10.10	17.97	25.46
29		10.20	18.90	24.68
Nov. 5		10.20	17.76	25.90
6		10.10	18.33	25.22
1894.84	4	10.150	18.24	25.31
1895.	U. C.			
Oct. 1	E	16.55	29.05	25.64
7		16.43	29.65	25.73
9		16.45	29.48	25.63
24		16.48	29.48	25.59
Nov. 7		16.53	29.35	25.82
1895.79	5	16.488	29.40	25.68
East	4	16.417	29.82	25.61
West	4	.395	29.75	25.31
East	5	.488	29.40	25.68
		16.438	29.64	25.54
Flex.			−.11	+.06
U. C.	13	3 39 16.438	71 0 29.53	25.60
1896.	L. C.			
June 8	E	22.70	40.54	25.38
10		22.44	41.34	26.23
11		22.56	40.16	25.41
12		22.77	41.43	25.99
1896.44	4	22.617	40.87	25.75
Flex.			+.15	+.09
			41.02	25.84
L. C.	4	3 39 16.371	71 0 29.52	
U. C.	13	16.438	29.53	25.60
L. C.	4	.371	29.52	25.84
Mean		3 39 16.405	71 0 29.53	25.72
Obs. − B. J.		+.092	−0.08	
Obs. − A. E.		+.068	−0.10	
Sec. δ 3.0				

GROOMBRIDGE 750.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	6.4	4 3 39.149	85 16 39.64
C. T.		39.59	42.3

Date.	Obs.	Mean R. A.	Mean Decl.	φ
1894.	U. C.	h m s	° ′ ″	″
Nov. 23	W	21.95	30.59	25.21
Dec. 13		21.96	30.78	25.08
1894.92	2	21.955	30.68	25.14
1895.				
Jan. 25		——	40.14	24.89
26		39.45	40.11	25.39
1895.07	1, 2		40.13	25.14
1895.	U. C.			
Nov. 7	E	39.26	39.65	25.55
13		39.01	40.16	25.45
19		39.29	39.70	25.68
Dec. 9		38.73	39.74	25.55
1895.91	4	39.072	39.81	25.56
West	3, 4	39.259	40.29	25.14
East	4	.072	39.81	25.56
		39.153	40.05	25.35
Flex.			−.13	+.07
U. C.	7, 8	4 3 39.153	85 16 39.92	25.42
1894.	L. C.			
Apr. 30	E	21.90	29.02	24.73
May 2		21.55	30.09	25.94
7		21.94	29.84	25.47
9		22.10	29.61	25.60
July 5		21.51	29.87	25.50
6		22.17	[31.09]	[27.05]
11		22.55	30.26	25.87
13		22.09	30.11	25.74
1894.42	8, 7	21.939	29.83	25.55
1895.	L. C.			
July 15	W	38.80	39.54	25.48
16		39.28	39.69	25.64
17		39.50	39.19	25.31
19		38.98	39.66	26.11
1895.54	4	39.140	39.52	25.63
1896.	L. C.			
June 8	E	56.49	48.83	25.39
10		56.53	49.06	25.67
11		56.22	49.61	26.58
12		56.32	50.08	26.36
1896.44	4	56.390	49.39	26.00

GROOMBRIDGE 750.

	Obs.	Mean R. A.	Mean Decl.	φ
		h m s	° ′ ″	″
East	8, 7	39.148	39.60	25.55
West	4	.140	39.52	25.63
East	4	.164	39.64	26.00
		39.150	39.59	25.69
Flex.			+.14	+.08
L. C.	16, 15	4 3 39.150	85 16 39.73	25.77
U. C.	7, 8	39.153	39.92	25.42
L. C.	16, 15	.150	39.73	25.77
Mean		4 3 39.151	85 16 39.82	25.60
Obs. – B. J.		+.002	+0.18	
Obs. – C. T.		–.44	–2.5	
Sec. δ 12.2				

GROOMBRIDGE 848.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	6.1	4 34 42.309	75 44 58.15

Date.	Obs.	Mean R. A.	Mean Decl.	φ
1893.	U. C.	*h m s*	° ′ ″	″
Dec. 6	E	26.19	43.58	25.66
9		26.26	44.38	25.37
11		26.18	43.86	25.57
19		26.31	43.66	25.90
29		26.38	43.84	25.57
1893.96	5	26.264	43.86	25.61
1894.	U. C.			
Jan. 10	E	34.19	50.45	26.43
11		34.20	50.93	25.95
12		34.22	51.03	25.55
Feb. 1		34.18	51.36	25.62
2		34.24	50.83	25.87
13		34.19	50.80	26.01
14		34.20	51.66	25.56
1894.08	7	34.203	51.01	25.86
1894.	U. C.			
Nov. 8	W	34.26	50.41	26.12
14		34.25	50.91	25.49
16		34.23	50.85	25.89
19		34.17	50.97	25.54
1894.87	4	34.227	50.78	25.76

GROOMBRIDGE 848.

	Obs.	Mean R. A.	Mean Decl.	φ
		h m s	° ′ ″	″
East	12	42.205	58.19	25.75
West	4	.211	57.95	25.76
		42.207	58.13	25.75
Flex.			–.12	+.06
U. C.	16	4 34 42.207	75 44 58.01	25.81
1894.	L. C.			
June 20	E	34.00	50.93	25.43
21		34.32	50.34	24.49
26		34.26	49.90	24.28
1894.48	3	34.193	50.39	24.73
1895.	L. C.			
May 21	W	42.32	57.20	25.08
22		42.27	57.21	24.78
23		42.23	57.01	24.95
29		42.44	56.99	25.04
July 22		42.25	57.01	24.61
23		42.22	58.36	25.83
24		42.29	57.01	24.51
25		42.26	57.26	24.65
1895.48	8	42.285	57.26	24.93
East	3	42.177	57.56	24.73
West	8	.285	57.26	24.93
		42.256	57.34	24.87
Flex.			+.15	+.09
L. C.	11	4 34 42.256	75 44 57.49	24.96
U. C.	16	42.207	58.01	25.81
L. C.	11	.256	57.49	24.96
Mean		4 34 42.231	75 44 57.75	25.39
Obs. – B. J.		–.078	–0.40	
Sec. δ 4.1				

19 H. CAMELOPARDALIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	5.0	5 5 15.026	79 6 34.71

Date. 1894.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ
May 22	E	5.32	——	——
23		5.17	——	——
June 19		5.41	——	——
1894.42	3, 0	5.300		
1895.	L. C.			
May 13	W	15.45	35.55	26.53
14		15.27	34.96	25.69
16		15.30	34.31	25.40
17		15.17	34.09	25.13
July 15		14.90	34.42	25.29
17		15.07	34.33	25.38
19		14.96	34.41	25.79
1895.44	7	15.160	34.58	25.60
1896.	L. C.			
June 16	E	24.97	39.42	25.76
17		24.92	38.77	25.10
19		24.87	39.13	25.59
22		24.81	39.39	25.70
1896.47	4	24.892	39.18	25.54
East	3, 0	15.085	——	——
West	7	.160	34.58	25.60
East	4	.104	34.30	25.54
		15.127	34.48	25.58
Flex.			+.15	+.09
L. C.	14, 11	5 5 15.127	79 6 34.63	25.67
Sys. Corr.			+.10	
			34.73	
Obs. – B. J.		+.101	+0.02	
Sec. δ 5.3				

GROOMBRIDGE 966.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	6.5	5 25 41.110	74 58 23.99
A. E.		41.570	24.91

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Dec. 6	E	24.77	19.58	23.88
11		24.82	19.31	24.34
19		25.09	19.09	24.69
29		25.17	19.16	24.47
1893.96	4	24.962	19.28	24.34
1895.	U. C.			
Jan. 28	W	40.91	24.78	25.29
29		40.88	25.33	25.08
30		41.01	25.94	24.12
31		40.85	24.97	25.16
1895.08	4	40.912	25.26	24.91
1895.	U. C.			
Nov. 7	E	40.98	24.74	24.81
13		40.97	25.44	24.52
19		40.88	25.12	24.61
Dec. 9		40.79	25.21	24.43
1895.91	4	40.905	25.13	24.59
East	4	40.954	25.24	24.34
West	4	.912	25.26	24.91
East	4	.905	25.13	24.59
		40.924	25.21	24.61
Flex.			−.12	+.06
U. C.	12	5 25 40.924	74 58 25.09	24.67
1894.	L. C.			
July 5	E	33.24	21.32	25.80
6		32.86	21.35	26.16
11		32.93	21.69	26.15
13		32.89	21.19	25.67
1894.52	4	32.980	21.39	25.94
Flex.			+.15	+.09
			21.54	26.03
L. C.	4	5 25 40.976	74 58 24.51	
U. C.	12	40.924	25.09	24.67
L. C.	4	.976	24.51	26.03
Mean		5 25 40.950	74 58 24.80	25.35
Obs. – B. J.		−.160	+0.81	
Obs. – A. E.		−.620	−0.11	
Sec. δ 3.9				

22 H. CAMELOPARDALIS.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
B. J.	4.6	6 7 16.519	69 21 22.44
A. E.		16.289	21.93

Date. 1894.	Obs. U. C.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″
Nov. 8	W	9.87	23.49	25.25
14		9.92	23.61	25.00
16		9.86	23.54	25.40
19		9.89	23.07	25.64
1894.87	4	9.885	23.43	25.32
Flex.			−.11	+.05
			23.32	25.37
U. C.	4	6 7 16.504	69 21 22.58	
1895.	L. C.			
May 21	W	16.52	21.88	25.47
22		16.46	21.26	24.54
23		16.52	21.28	24.93
29		16.53	[19.87]	[23.63]
July 22		16.57	21.93	25.24
23		16.52	22.28	25.46
24		16.61	22.15	25.36
25		16.72	20.76	23.86
1895.48	8, 7	16.556	21.65	24.98
Flex.			+.15	+.09
L. C.	8, 7	6 7 16.556	69 21 21.80	25.07
U. C.	4	16.504	22.58	25.37
L. C.	8, 7	.556	21.80	25.07
Mean		6 7 16.530	69 21 22.19	25.22
Obs. − B. J.		+.011	−0.25	
Obs. − A. E.		+.241	+0.26	
Sec. δ 2.8				

23 H. CAMELOPARDALIS.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
B. J.	5.3	6 28 18.712	79 40 36.94

Date. 1893.	Obs. U. C.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″
Dec. 9	E	27 57.87	43.66	25.44
1894.				
Jan. 10		28 8.14	41.31	24.65
11		8.32	41.28	24.62
12		8.21	41.30	24.36
1894.03	3	8.223	41.30	24.54

23 H. CAMELOPARDALIS.

Date. 1895.	Obs. U. C.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″
Jan. 28	W	18.54	37.86	25.16
29		18.56	38.35	25.01
30		18.49	38.59	24.42
31		18.38	38.00	25.08
Feb. 1		18.46	38.48	24.12
2		18.57	38.53	24.41
4		18.78	37.74	25.19
5		18.62	37.93	24.89
1895.09	8	18.550	38.18	24.78
1895.	U. C.			
Nov. 7	E	18.46	37.40	25.10
13		18.61	38.54	24.37
19		18.48	37.93	24.75
Dec. 9		18.38	37.78	24.81
1895.91	4	18.482	37.91	24.76
East	4	18.549	37.99	24.76
West	8	.550	38.18	24.78
East	4	.482	37.91	24.76
		18.533	38.06	24.77
Flex.			−.13	+.07
U. C.	16	6 28 18.533	79 40 37.93	24.84
1894.	L. C.			
June 20	E	8.01	40.11	25.53
21		8.10	40.55	25.62
25		8.22	40.32	25.63
26		8.26	40.49	25.79
1894.48	4	8.148	40.37	25.64
1896.	L. C.			
June 8	E	28.88	34.32	26.48
10		28.88	33.35	25.55
11		28.98	33.42	25.98
12		28.88	34.86	26.73
1896.44	4	28.905	33.99	26.18
East	4	18.479	37.25	25 64
East	4	.575	37.13	26.18
		18.527	37.19	25.91
Flex.			+.15	+.09
L. C.	8	6 28 18.527	79 40 37.34	26.00
U. C.	16	18.533	37.93	24.84
L. C.	8	.527	37.34	26.00
Mean		6 28 18.530	79 40 37.63	25.42
Obs. − B. J.		−.182	+0.69	
Sec. δ 5.6				

51 H. CEPHEI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	5.1	6 51 16.145	87 12 43.18
A. E.		14.440	43.18
C. T.		16.83	41.4
N. A.		15.384	43.08

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 1	E	50 46.08	48.11	25.55
2		45.82	48.40	24.98
13		46.34	48.34	25.15
14		45.84	47.99	25.91
26		45.64	48.14	25.07
27		45.32	46.78	26.80
28		45.75	48.14	25.27
Mar. 12		46.06	47.77	25.47
14		45.43	48.06	25.54
21		44.97	49.27	24.08
22		45.02	[45.59]	[28.14]
23		45.72	48.01	25.28
1894.16	12, 11	45.667	48.09	25.37
1894.	U. C.			
Nov. 23	W	46.04	47.69	25.90
Dec. 13		46.05	48.64	25.00
1894.92	2	46.045	48.16	25.45
1895.				
Jan. 25	W	51 15.46	43.21	25.36
26		15.50	43.24	25.80
Feb. 1		15.64	44.10	24.74
2		15.58	43.91	25.27
4		15.52	43.23	25.94
5		16.07	43.37	25.69
18		15.88	44.58	24.50
20		15.18	44.65	24.65
27		16.11	43.70	25.69
28		15.67	44.18	25.21
1895.11	10	15.661	43.82	25.28
1896.	U. C.			
Jan. 2	E	44.99	38.69	26.07
6		45.05	39.52	25.39
Feb. 7		45.25	39.37	25.33
12		45.46	39.35	25.79
1896.06	4	45.187	39.23	25.64
East	12, 11	15.478	43.61	25.37
West	12	.693	43.80	25.31
East	4	.400	43.75	25.64
		15.560	43.71	25.38
Flex.			−.13	+.08
U. C.	28, 27	6 51 15.560	87 12 43.58	25.46

51 H. CEPHEI.

Date. 1894.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
July 16	E	50 45.26	47.66	25.32
1895.	L. C.			
July 30	W	51 15.40	43.32	25.70
31		15.83	43.08	25.25
Aug. 5		16.52	42.87	25.05
8		15.55	42.96	25.07
1895.59	4	15.825	43.06	25.27
1896.	L. C.			
June 16	E	44.84	38.63	25.90
17		44.95	38.14	25.39
19		45.20	37.75	25.14
22		44.83	38.36	25.60
1896.47	4	44.955	38.22	25.51
East	1	15.075	43.18	25.32
West	4	15.825	43.06	25.27
East	4	15.168	42.74	25.51
		15.450	42.93	25.38
Flex.			+.14	+.08
L. C.	9	6 51 15.450	87 12 43.07	25.46
U. C.	28, 27	15.560	43.58	25.46
L. C.	9	.450	43.07	25.46
Mean		6 51 15.505	87 12 43.33	25.46
Obs. − B. J.		−0.640	+0.15	
Obs. − A. E.		−1.065	+0.15	
Obs. − C. T.		−1.33	+1.9	
Obs. − N. A.		+0.121	+0.25	
Sec. δ 20.0				

GROOMBRIDGE 1374.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	5.4	7 47 37.362	74 11 52.37
A. E.		37.397	52.34

Date. 1893.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 13	E	22.84	12 10.28	25.66
14		22.79	10.66	25.76
15		22.83	10.16	25.41
20		22.84	[12.46]	[28.35]
22		22.77	9.74	25.34
25		22.97	——	——
1893.71	6, 4	22.840	10.21	25.54
1894.	L. C.			
July 16	E	29.99	11 59.74	23.59
18		29.99	59.19	23.30
20		30.09	61.53	26.02
23		30.07	60.01	24.04
1894.55	4	30.035	60.12	24.24
1895.	L. C.			
July 15	W	37.59	52.10	25.31
16		37.49	51.86	25.06
17		37.40	51.63	25.02
19		37.33	51.27	24.99
Aug. 12		37.44	51.79	24.88
14		37.47	52.31	25.49
16		37.48	52.05	25.28
21		37.36	51.06	24.31
1895.58	8	37.445	51.76	25.04
East	10, 8	37.359	51.52	24.89
West	8	.445	51.76	25.04
		37.397	51.64	24.96
Flex.			+.15	+.09
L. C.	18, 16	7 47 37.397	74 11 51.79	25.05
Sys. Corr.			+.10	
			51.89	
Obs. – B. J.		+.035	−0.48	
Obs. – A. E.		.000	−0.45	
Sec. δ 3.7				

BRADLEY 1147.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	5.1	8 6 20.832	76 4 36.69

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 1	E	12.97	47.84	25.35
2		13.23	47.50	25.41
13		13.11	47.93	25.05
14		13.14	47.33	26.10
1894.11	4	13.112	47.65	25.49
1895.	U. C.			
Jan. 28	W	20.69	37.29	25.48
29		20.77	36.72	26.39
30		20.88	37.37	25.39
31		20.86	37.43	25.40
Mar. 4		20.96	37.00	25.37
1895.10	5	20.832	37.16	25.61
1896.	U. C.			
Jan. 2	E	28.50	25.97	26.31
6		28.46	26.57	25.86
Feb. 7		28.58	26.65	25.57
12		28.52	26.46	26.20
1896.06	4	28.515	26.41	25.98
East	4	20.783	37.15	25.49
West	5	.832	37.16	25.61
East	4	.847	36.92	25.98
		20.821	37.08	25.69
Flex.			−.12	+.06
U. C.	13	8 6 20.821	76 4 36.96	25.75

BRADLEY 1147.

Date. 1893.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 14	E	5.30	——	——
20		5.41	58.25	27.02
1893.71	2, 1	5.355		
1894.	L. C.			
July 5	E	12.90	47.70	26.01
6		13.08	46.71	25.35
11		13.09	46.97	25.26
13		13.04	47.71	26.02
18		12.95	46.18	24.56
23		13.16	46.39	24.70
1894.53	6	13.037	46.94	25.32
1895.	L. C.			
July 22	W	20.85	35.97	25.03
23		20.83	36.41	25.34
24		20.96	35.64	24.60
25		20.90	36.13	24.98
30		20.76	36.47	25.34
31		20.82	37.05	25.71
Aug. 5		20.89	36.44	25.11
8		20.82	36.57	25.17
1895.58	8	20.854	36.33	25.16
1896.	L. C.			
June 16	E	28.55	26.49	26.24
17		28.61	24.80	24.54
19		28.57	25.91	25.78
22		28.60	26.40	26.12
1896.47	4	28.582	25.90	25.67
East	8, 7	20,706	36.56	25.56
West	8	.854	36.33	25.16
East	4	.914	36.41	25.67
		20.807	36.43	25.42
Flex.			+.15	+.09
L. C.	20, 19	8 6 20.807	76 4 36.58	25.51
U. C.	13	20.821	36.96	25.75
L. C.	20, 19	.807	36.58	25.51
Mean		8 6 20.814	76 4 36.77	25.63
Obs. – B. J.		–.018	+0.08	
Sec. δ 4.1				

1 H. DRACONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″	
B. J.	4.3	9 22 6.224	81 47 24.58	
A. E.		6.642	24.54	
Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 26	E	21 57.31	40.04	25.58
28		57.44	39.91	25.91
Mar. 12		——	40.12	25.53
Apr. 2		57.29	40.26	25.42
3		57.28	40.04	25.43
4		57.55	39.83	25.83
5		57.49	40.27	25.70
1894.22	6, 7	57.393	40.07	25.63
1895.	U. C.			
Apr. 2	W	22 6.40	24.74	25.55
5		6.38	24.81	25.91
8		6.59	24.07	25.85
1895.26	3	6.457	24.54	25.77
East	6, 7	6.341	24.58	25.63
West	3	.457	24.54	25.77
		6.380	24.57	25.67
Flex.			–.13	+.07
U. C.	9, 10	9 22 6.380	81 47 24.44	25.74
1893.	L. C.			
Sept. 13	E	21 48.27	53.96	24.34
15		48.10	53.82	24.07
22		48.38	53.69	24.29
Oct. 2		48.31	54.80	24.84
3		48.37	54.51	25.05
5		48.30	54.47	24.80
10		48.37	54.23	24.87
11		48.45	53.53	24.09
12		48.52	54.21	24.56
13		48.40	53.88	24.86
17		48.29	54.17	24.80
1893.76	11	48.342	54.12	24.60
1894.	L. C.			
July 16	E	57.36	39.07	24.32
20		57.02	38.82	24.72
1894.55	2	57.190	38.94	24.52

1 H. DRACONIS.

Date. 1894.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 3	W	21 57.33	40.12	25.66
4		57.31	39.90	25.13
5		57.32	40.01	25.22
9		57.48	39.62	25.22
10		57.32	39.64	25.05
1894.77	5	57.352	39.86	25.26
1895.	L. C.			
Aug. 12	W	22 6.08	24.34	25.22
14		6.16	24.76	25.73
16		6.40	24.18	25.20
21		6.37	24.16	25.20
1895.63	4	6.252	24.36	25.34
1895.	L. C.			
Sept. 4	E	6.30	23.72	24.67
6		6.47	24.32	25.07
19		6.28	24.27	25.21
23		6.34	24.72	25.47
1895.70	4	6.348	24.26	25.10
East	13	6.231	23.19	24.59
West	9	.279	24.37	25.30
East	4	.348	24.26	25.10
		6.266	23.76	24.91
Flex.			+.14	+.09
L. C.	26	9 22 6.266	81 47 23.90	25.00
U. C.	9, 10	6.380	24.44	25.74
L. C.	26	.266	23.90	25.00
Mean		9 22 6.323	81 47 24.17	25.37
Obs. – B. J.		+.099	−0.41	
Obs. – A. E.		−.319	−0.37	
Sec. δ 7.0				

GROOMBRIDGE 1586.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	6.0	9 48 59.607	73 22 43.27

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 26	E	54.08	59.73	26.00
28		54.12	60.66	25.27
Mar. 12		54.10	59.91	25.85
14		54.17	60.48	25.64
21		54.21	60.24	25.63
22		54.16	60.26	25.89
23		54.14	60.48	25.33
1894.20	7	54.140	60.25	25.66
1895.	U. C.			
Feb. 1	W	59.58	42.89	26.04
2		59.62	43.55	25.72
4		59.63	43.41	25.85
5		59.67	43.35	25.80
Apr. 2		59.56	42.62	26.36
5		59.58	42.75	26.66
8		59.63	42.59	26.02
1895.17	7	59.610	43.02	26.06
1896.	U. C.			
Mar. 10	E	49 5.25	25.29	26.77
12		5.14	25.69	26.24
Apr. 2		5.16	25.34	26.55
May 7		5.17	25.75	26.16
1896.25	4	5.180	25.52	26.43
East	7	59.614	43.34	25.66
West	7	.610	43.02	26.06
East	4	.709	42.43	26.43
		59.634	43.01	25.99
Flex.			−.12	+.06
U. C.	18	9 48 59.634	73 22 42.89	26.05
1893.	L. C.			
Oct. 2	E	48.59	23 16.65	25.17
3		48.63	15.83	24.85
5		48.57	15.71	24.52
10		48.57	15.05	24.17
11		48.74	15.34	24.38
12		48.55	16.26	25.09
13		48.60	15.32	24.78
17		48.64	16.28	25.40
1893.78	8	48.611	15.80	24.80
Flex.			+.15	+.09
			15.95	24.89
L. C.	8	9 48 59.560	73 22 42.14	
U. C.	18	59.634	42.89	26.05
L. C.	8	.560	42.14	24.89
Mean		9 48 59.597	73 22 42.52	25.47
Obs. – B. J.		−.010	−0.75	
Sec. δ 3 5				

9 H. DRACONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.6	10 26 9.899	76 15 13.51
A. E.		10.537	13.09

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Mar. 12	E	4.60	31.73	25.75
14		4.81	32.72	25.12
21		4.77	32.13	25.46
22		4.88	32.61	25.26
23		4.68	32.77	24.76
Apr. 2		4.83	33.01	24.50
3		4.80	32.56	24.74
4		4.77	31.98	25.51
5		4.58	32.77	25.05
9		4.86	32.64	24.84
16		4.71	32.18	24.92
17		4.80	32.83	24.74
18		4.78	31.65	25.21
1894.25	13	4.759	32.43	25.07
1895.	U. C.			
Feb. 18	W	9.92	13.93	25.48
20		10.09	14.13	25.80
27		9.94	13.64	26.08
28		10.03	13.96	25.76
Apr. 10		10.05	14.28	24.82
11		9.97	13.86	25.29
15		10.00	13.56	25.47
17		9.98	13.99	25.13
1895.22	8	9.998	13.92	25.44
1896.	U. C.			
Jan. 2	E	15.39	14 55.42	25.78
6		15.22	55.82	25.53
Feb. 7		15.22	55.27	25.87
12		15.36	55.44	26.14
1896.06	4	15.297	55.49	25.83
East	13	9.993	15 14.04	25.07
West	8	.998	13.92	25.44
East	4	10.066	13.90	25.83
		10.006	13.98	25.31
Flex.			−.12	+.06
U. C.	25	10 26 10.006	76 15 13.86	25.37

9 H. DRACONIS.

Date. 1893.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 13	E	25 59.44	——	——
14		59.35	——	——
15		59.32	——	——
20		59.44	48.94	25.09
22		59.49	49.81	25.67
25		59.37	49.28	25.29
1893.72	6, 3	59.418	49.34	25.35
1894.	L. C.			
July 16	E	26 4.69	31.25	24.67
18		4.76	32.38	26.06
20		4.75	31.13	25.19
23		4.76	31.19	24.79
1894.55	4	4.740	31.49	25.18
1894.	L. C.			
Oct. 10	W	4.69	31.51	25.09
12		4.77	31.80	25.54
16		4.71	32.28	25.96
22		4.65	31.80	25.80
1894.79	4	4.705	31.85	25.60
1895.	L. C.			
July 30	W	9.97	14.29	26.34
31		10.06	14.42	26.26
Aug. 5		9.99	13.79	25.64
8		9.98	13.42	25.20
12		9.84	13.32	25.27
14		9.98	14.31	26.35
16		10.03	14.18	26.27
21		9.82	13.77	25.88
1895.61	8	9.959	13.94	25.90
1895.	L. C.			
Sept. 4	E	10.06	13.56	25.58
6		10.00	13.72	25.54
19		10.08	13.86	25.87
23		9.98	14.02	25.84
1895.70	4	10.030	13.79	25.71
East	10, 7	9.924	12.86	25.25
West	12	.952	13.78	25.80
East	4	10.030	13.79	25.71
		9.953	13.50	25.62
Flex.			+.15	+.09
L. C.	26, 23	10 26 9.953	76 15 13.65	25.71
U. C.	25	10.006	13.86	25.37
L. C.	26, 23	9.953	13.65	25.71
Mean		10 26 9.980	76 15 13.76	25.54
Obs. − B. J.		+.081	+0.25	
Obs. − A. E.		−.557	+0.67	
Sec. δ 4.2				

λ DRACONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.3	11 25 10.316	69 54 38.03
A. E.		10.088	37.94
C. T.		10.23	36.8
N. A.		10.193	37.83

Date. 1893.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 2	E	2.71	55 17.55	25.47
3		2.93	18.07	25.90
7		2.83	18.08	25.92
8		2.78	17.11	24.75
13		2.78	[20.15]	[27.61]
14		3.00	19.09	26.48
15		2.96	18.24	——
21		2.93	19.16	27.03
1893.86	8, 7	2.865	18.19	25.92
1894.	L. C.			
Oct. 25	W	6.52	54 57.35	24.80
29		6.55	55.96	23.56
Nov. 5		6.57	55.89	23.57
6		6.62	56.99	24.56
1894.84	4	6.565	56.55	24.12
East	8, 7	10.104	38.50	25.92
West	4	.184	36.70	24.12
		10.131	37.84	25.20
Flex.			+.15	+.09
L. C.	12, 11	11 25 10.131	69 54 37.99	25.29
Sys. Corr.			+.10	
			38.09	
Obs. – B. J.		−.185	+0.06	
Obs. – A. E.		+.043	+0.15	
Obs. – C. T.		−.10	+1.3	
Obs. – N. A.		−.062	+0.26	
Sec. δ 2.9				

4 H. DRACONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.6	12 7 16.751	78 11 59.31
A. E.		17.202	58.87

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 9	E	13.78	12 19.29	25.62
16		13.67	18.73	25.80
17		13.53	19.42	25.58
18		13.76	19.05	25.27
1894.29	4	13.685	19.12	25.57
1895.	U. C.			
Mar. 4	W	16.44	11 59.31	25.68
Apr. 2		16.55	58.84	26.18
5		16.59	58.90	26.55
8		16.62	58.27	26.38
10		16.75	58.82	26.08
11		16.64	59.06	25.89
15		16.62	58.90	25.93
17		16.62	59.28	25.64
18		16.66	58.69	25.90
22		16.57	58.15	26.25
May 7		16.73	59.03	25.98
8		16.63	59.24	25.66
1895.28	12	16.618	58.87	26.01
1896.	U. C.			
Mar. 10	E	19.67	38.52	26.47
12		19.50	38.27	26.59
Apr. 2		19.65	38.57	26.35
May 7		19.46	38.91	25.93
11		19.53	39.05	26.15
1896.27	5	19.562	38.66	26.30
East	4	16.556	59.10	25.57
West	12	.618	58.87	26.01
East	5	.692	58.68	26.30
		16.624	58.87	26.00
Flex.			−.12	+.07
U. C.	21	12 7 16.624	78 11 58.75	26.07

4 H. DRACONIS.

Date. 1893.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 2	E	10.98	12 37.64	23.89
3		10.84	36.95	23.70
5		10.96	——	——
10		10.77	——	——
11		10.96	37.93	24.70
12		11.09	——	——
13		10.91	37.49	24.68
17		10.82	38.42	25.26
Nov. 2		10.80	38.93	25.22
3		10.95	38.80	25.00
13		10.74	38.38	24.21
14		10.76	38.51	24.96
1893.81	12, 9	10.882	38.12	24.62
1894.	L. C.			
Oct. 3	W	13.65	18.41	24.69
4		13.87	19.57	25.54
5		13.80	19.07	25.02
9		13.80	18.64	24.98
10		13.80	19.68	25.83
12		13.83	19.13	25.54
16		13.69	19.55	25.80
22		13.94	18.52	25.09
1894.78	8	13.798	19.07	25.31
1895.	L. C.			
Sept. 4	E	16.72	11 58.97	25.19
6		16.51	58.84	24.86
19		16.60	58.34	24.55
23		16.66	58.38	24.40
1895.70	4	16.622	58.63	24.75
East	12, 9	16.626	58.08	24.62
West	8	.669	59.05	25.31
East	4	.622	58.63	24.75
		16.640	58.55	24.91
			+.15	+.09
L. C.	24, 21	12 7 16.640	78 11 58.70	25.00
U. C.	21	16.624	58.75	26.07
L. C.	24, 21	.640	58.70	25.00
Mean		12 7 16.632	58.72	25.53
Obs. – B. J.		–.119	–0.59	
Obs. – A. E.		–.570	–0.15	
Sec. δ 5.0				

x DRACONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.3	12 28 59.961	70 22 1.03
A. E.		60.176	1.00

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 30	E	57.49	21.38	25.12
May 2		57.65	21.01	25.63
7		57.56	20.95	25.47
9		57.59	21.32	25.47
1894.34	4	57.572	21.16	25.42
1895.	U. C.			
May 13	W	59.89	1.51	25.21
14		59.86	1.26	25.21
16		59.98	1.80	25.03
17		60.08	1.07	25.69
1895.37	4	59.952	1.41	25.28
East	4	60.156	1.27	25.42
West	4	59.952	1.41	25.28
		60.054	1.34	25.35
Flex.			–.11	+.05
U. C.	8	12 28 60.054	70 22 1.23	25.40
1894.	L. C.			
Oct. 25	W	57.36	21.14	25.55
29		57.34	19.83	24.39
Nov. 5		57.42	20.48	25.12
6		57.42	21.93	26.46
1894.84	4	57.385	20.84	25.38
1895.	L. C.			
Oct. 1	E	60.13	1.11	25.16
7		60.10	1.00	25.74
9		60.04	1.53	26.00
24		60.03	2.24	26.67
1895.78	4	60.075	1.47	25.89
West	4	59.969	0.95	25.38
East	4	60.075	1.47	25.89
		60.022	1.21	25.63
Flex.			+.15	+.09
L. C.	8	12 28 60.022	70 22 1.36	25.72
U. C.	8	0.054	1.23	25.47
L. C.	8	.022	1.36	25.72
Mean		12 29 0.038	70 22 1.30	25.60
Obs. – B. J.		+.077	+0.27	
Obs. – A. E.		–.138	+0.30	
Sec. δ 2.9				

GROOMBRIDGE 2001.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	5.7	13 23 27.329	72 56 12.37

Date. 1894.	Obs. U. C.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″
Apr. 3	E	25.81	30.97	25.56
4		25.88	30.74	25.98
5		25.81	31.85	25.20
1894.26	3	25.833	31.19	25.58
1895.	U. C.			
Apr. 10	W	27.19	12.74	25.22
11		27.41	12.20	25.81
15		27.31	12.91	24.98
17		27.42	12.90	25.08
18		27.34	11.93	25.72
22		27.43	12.15	25.31
May 7		27.37	12.78	25.29
8		27.43	12.92	25.04
1895.30	8	27.362	12.57	25.31
1896.	U. C.			
Mar. 10	E	28.90	55 53.35	25.96
12		28.81	52.80	26.38
May 7		28.94	53.43	25.73
11		28.78	54.13	25.39
1896.28	4	28.857	53.43	25.86
East	3	27.352	12.43	25.58
West	8	.362	12.57	25.31
East	4	.338	12.19	25.86
		27.354	12.44	25.51
Flex.			−.12	+.06
U. C.	15	13 23 27.354	72 56 12.32	25.57
1893.	L. C.			
Nov. 7	E	24.34	49.51	25.17
8		24.31	50.00	25.46
15		24.27	49.37	——
1893.86	3	24.307	49.63	25.31
1894.	L. C.			
Oct. 3	W	25.79	30.92	25.40
4		25.85	30.65	24.82
5		25.81	31.37	25.52
9		25.63	30.50	25.04
1894.77	4	25.770	30.86	25.19
East	3	27.345	12.11	25.31
West	4	.289	12.10	25.19
		27.313	12.10	25.23
Flex.			+.15	+.09
L. C.	7	13 23 27.313	72 56 12.25	25.32
U. C.	15	27.354	12.32	25.57
L. C.	7	.313	12.25	25.32
Mean		13 23 27.334	72 56 12.29	25.45
Obs. − B. J.		+.005	−0.08	
Sec. δ 3.4				

4 URSAE MINORIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	5.0	14 9 15.426	78 2 27.50
A. E.		15.431	27.53

Date. 1894.	Obs. U. C.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″
Apr. 9	E	15.55	44.96	25.03
16		15.63	43.86	25.75
17		15.63	44.16	25.92
18		15.65	44.29	25.11
May 2		15.70	——	——
7		15.85	——	——
9		15.96	——	——
22		15.78	44.33	26.05
23		15.66	44.68	25.31
June 8		15.75	44.64	25.38
19		15.69	44.62	25.46
1894.36	11, 8	15.714	44.44	25.50
1895.	U. C.			
May 21	W	15.47	27.82	25.71
22		15.44	27.54	25.68
23		15.38	27.21	26.38
29		15.51	27.71	25.99
1895.40	4	15.450	27.57	25.94
East	11, 8	15.398	27.53	25.50
West	4	.450	27.57	25.94
		15.412	27.54	25.65
Flex.			−.12	+.07
U. C.	15, 12	14 9 15.412	78 2 27.42	25.72
1893.	L. C.			
Nov. 2	E	16.05	3 0.70	25.02
3		16.05	0.60	24.83
13		15.91	0.48	24.34
14		16.06	0.18	24.66
Dec. 6		15.89	1.20	25.31
11		16.01	0.44	24.74
19		15.95	0.59	25.02
29		15.93	——	——
1893.90	8, 7	15.981	0.60	24.85
1894.	L. C.			
Oct. 10	W	15.67	2 43.11	24.18
12		15.72	44.02	25.25
16		15.75	44.40	25.57
22		15.70	43.54	25.03
Nov. 8		15.72	44.20	25.35
14		15.73	44.75	25.77
16		15.60	44.04	25.39
19		15.67	43.92	25.04
1894.83	8	15.695	44.00	25.20

4 URSAE MINORIS.

Date. 1895.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 1	E	15.43	26.97	24.55
7		15.47	27.05	25.32
9		15.64	27.55	25.55
24		15.47	27.01	24.97
1895.78	4	15.502	27.14	25.10
East	8, 7	15.348	26.78	24.85
West	8	.379	27.09	25.20
East	4	.502	27.14	25.10
		15.391	26.99	25.05
Flex.			+.15	+.09
L. C.	20, 19	14 9 15.391	78 2 27.14	25.14
U. C.	15, 12	15.412	27.42	25.72
L. C.	20, 19	.391	27.14	25.14
Mean		14 9 15.401	78 2 27.28	25.43
Obs. – B. J.		–.025	–0.22	
Obs. – A. E.		–.030	–0.25	
Sec. δ 4.8				

β URSAE MINORIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	2.0	14 51 0.693	74 35 4.35
A. E.		0.686	4.45
C. T.		0.61	3.5
N. A.		0.668	4.70

Date. 1893.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 7	E	1.02	33.53	25.28
8		0.93	33.18	24.73
15		0.99	34.89	——
21		0.97	——	——
Dec. 9		1.04	31.87	24.00
1893.88	5, 4	0.990	33.37	24.67
1894.	L. C.			
Jan. 10	E	0.86	18.79	25.61
11		0.89	18.91	25.67
12		0.79	18.47	24.99
1894.03	3	0.847	18.72	25.42
East	8, 7	14 51 0.567	74 35 3.94	25.04
Flex.			+.15	+.09
L. C.			74 35 4.09	25.13
Sys. Corr.			+.10	
			4.19	
Obs. B. J.		–.126	–0.16	
Obs. – A. E.		–.119	–0.26	
Obs. C. T.		–.04	+0.7	
Obs. – N. A.		–.101	–0.51	
Sec. δ 3.7				

γ URSAE MINORIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.0	15 20 53.913	72 12 27.59
A. E.		53.754	27.40
C. T.		54.37	28.8

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
June 20	E	53.77	39.58	26.30
21		53.72	39.22	26.31
25		53.56	40.29	25.48
26		53.63	39.59	26.17
1894.48	4	53.670	39.67	26.06
1895.	U. C.			
May 21	W	53.70	27.84	25.78
22		53.60	28.31	25.00
23		53.51	28.16	25.52
29		53.55	28.13	25.66
1895.40	4	53.590	28.11	25.49
1896.	U. C.			
June 8	E	53.60	14.53	26.20
10		53.54	14.88	25.90
11		53.43	14.60	26.54
12		53.51	13.97	26.48
1896.44	4	53.520	14.49	26.28
East	4	53.545	26.86	26.06
West	4	.590	28.11	25.49
East	4	.645	27.30	26.28
		53.593	27.42	25.94
Flex.			–.11	+.06
U. C.	12	15 20 53.593	72 12 27.31	26.00
Sys. Corr.			–.10	
			27.21	
Obs. – B. J.		–.320	–0.38	
Obs. – A. E.		–.161	–0.19	
Obs. – C. T.		–.78	–1.6	
Sec. δ 3.2				

ζ URSAE MINORIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.3	15 47 48.387	78 7 2.65
A. E.		48.715	2.58
C. T.		49.22	3.1
N. A.		48.358	2.73

Date. 1895.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 18	W	48.25	2.91	25.02
22		48.41	2.14	25.60
May 7		48.45	3.12	25.23
8		48.56	2.13	26.11
1895.33	4	48.417	2.57	25.49
Flex.			−.12	+.07
U. C.	4	15 47 48.417	78 7 2.45	25.56
1893.	L. C.			
Dec. 6	E	52.82	23.91	24 81
11		52.86	23.37	24.46
19		52.75	23.91	25.13
29		52.81	——	——
1893.95	4, 3	52.810	23.73	24.80
1894.	L. C.			
Oct. 25	W	50.59	14.44	26.18
29		50.68	13.34	25.23
Nov. 5		50.62	14.07	26.04
6		50.69	14.42	26.28
8		50.68	13.90	25.87
14		50.60	13.43	25.27
16		50.60	[12.19]	[24.36]
19		50.62	13.51	25.45
1894.86	8, 7	50.635	13.87	25.76
1895.	L. C.			
Oct. 1	E	48.51	3.27	25.70
7		48.40	2.03	25.15
9		48.44	2.34	25.19
24		48.54	2.27	25.08
Nov. 7		48.50	2.92	25.83
13		48.45	1.74	25.06
19		48.40	2.30	25.39
Dec. 9		48.42	2.53	25.53
1895.84	8	48.458	2.42	25.37
East	4, 3	48.306	1.85	24.80
West	8, 7	.384	2.93	25.76
East	8	.458	2.42	25.37
		48.398	2.52	25.43
Flex.			+.15	+.09
L. C.	20, 18	15 47 48.398	78 7 2.67	25.52

ζ URSAE MINORIS.

	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
U. C.	4	48.417	2.45	25.56
L. C.	20, 18	.398	2.67	25.52
Mean		15 47 48.407	78 7 2.56	25.54
Obs. − B. J.		+.020	−0.09	
Obs. − A. E.		−.308	−0.02	
Obs. − C. T.		−.81	−0.5	
Obs. − N. A.		+.049	−0.17	
Sec. δ 4.7				

19 URSAE MINORIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	5.8	16 13 48.918	76 8 30.29

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Apr. 30	E	50.70	40.49	24.34
May 2		50.60	39.69	25.28
7		50.76	40.37	24.38
9		50.71	39.82	25.30
July 5		50.65	39.89	24.86
6		50.71	39.04	25.04
11		50.72	39.95	24.78
13		50.75	39.78	24.97
1894.47	8	50.700	39.88	24.87
1895.	U. C.			
July 15	W	49.24	30.82	25.05
16		49.00	30.60	25.28
17		49.05	31.54	24.51
19		49.20	31.54	24.84
1895.54	4	49.122	31.12	24.92
East	8	48.919	30.92	24.87
West	4	49.122	31.12	24.92
		48.987	30.99	24.89
Flex.			−.12	+.06
U. C.	12	16 13 48.987	76 8 30.87	24.95
Sys. Corr.			−.10	
			30.77	
Obs. − B. J.		+.069	+0.48	
Sec. δ 4.2				

...RSAE MINORIS.

ψ DRACONIS AUS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.6	17 43 48.234	72 12 1.13
A. E.		48.285	0.78

Date. 1894.	Obs. U. C.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″
May 22	E	49.34	2.50	26.29
23		49.17	2.82	25.58
June 8		49.24	2.81	25.62
19		49.41	2.63	25.86
1894.42	4	49.290	2.69	25.84
1895.	U. C.			
May 13	W	48.24	0.58	26.24
14		48.12	1.18	25.39
16		48.13	1.64	25.29
17		48.12	2.26	24.62
21		48.23	1.75	25.41
22		48.22	1.59	25.26
23		48.26	1.58	25.64
29		48.24	2.18	25.15
July 15		48.33	1.34	25.37
16		48.35	1.33	25.39
17		48.33	1.78	25.11
19		48.37	1.86	25.36
22		48.10	1.41	25.47
23		48.27	0.65	26.10
24		48.35	1.76	25.02
25		48.28	1.64	25.03
1895.47	16	48.246	1.53	25.37
1896.	U. C.			
June 16	E	47.20	11 59.41	25.97
17		47.21	59.40	25.97
19		47.14	59.54	25.96
22		47.22	59.56	25.79
1896.47	4	47.192	59.48	25.92
East	4	48.209	12 1.00	25.84
West	16	.246	1.53	25.37
East	4	.274	1.16	25.92
		48.245	1.38	25.54
Flex.			−.11	+.06
U. C.	24	17 43 48.245	72 12 1.27	25.60
Sys. Corr.			−.10	
			1.17	
Obs. − B. J.		+.011	+0.04	
Obs. − A. E.		−.040	+0.39	
Sec. δ 3.2				

35 DRACONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	5.0	17 54 8.983	76 58 35.36

Date. 1894.	Obs. L. C.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″
Jan. 10	E	11.64	35.64	25.91
11		11.60	35.00	25.21
12		11.62	35.41	25.38
1894.03	3	11.620	35.35	25.50
1894.	L. C.			
Nov. 8	W	11.64	35.98	25.91
14		11.55	35.07	24.87
16		11.59	35.37	25.50
19		11.58	35.52	25.42
1894.87	4	11.590	35.48	25.43
1895.	L. C.			
Jan. 28	W	8.78	34.65	25.37
29		8.81	35.79	26.85
30		8.86	35.42	26.13
31		8.81	35.32	26.10
1895.08	4	8.815	35.29	26.11
East	3	8.929	35.08	25.50
West	8	.857	35.25	25.77
		8.877	35.20	25.70
Flex.			+.15	+.09
L. C.	11	17 54 8.877	76 58 35.35	25.79
Sys. Corr.			+.10	
			35.45	
Obs. − B. J.		−.106	+0.09	
Sec. δ 4.4				

δ URSAE MINORIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.3	18 6 10.236	86 36 44.98
A. E.		10.278	45.07
C. T.		10.85	44.8
N. A.		9.975	44.79

Date. 1894.	Obs. U. C.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″
June 20	E	29.65	44.91	24.94
21		29.76	44.81	24.69
25		29.51	45.13	24.61
26		29.60	44.91	24.82
July 5		[26.09]	45.02	24.85
6		29.00	44.96	25.24
11		29.18	44 90	24.95
13		29.56	44 91	24.96
16		29.33	44.98	24.71
1894.51	8, 9	29.449	44.95	24.86
Flex.			−.13	+.08
			44.82	
U. C.	8, 9	18 6 9.973	86 36 45.43	24.94

δ URSAE MINORIS.

Date. 1893.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Dec. 9	E	49.01	43.45	25.64
1894.				
Feb. 26		29.00	44.11	25.29
27		29.00	44.09	25.64
28		29.47	44.60	25.98
Mar. 12		29.61	44.48	25.69
1894.12	4	29.270	44.32	25.65
1894.	L. C.			
Nov. 23	W	29.54	43.85	25.40
Dec. 13		29.45	43.72	25.34
1894.93	2	29.495	43.78	25.37
1895.				
Jan. 25		9.13	44.48	24.89
26		9.72	44.19	25.07
Feb. 1		9.58	44.48	25.16
2		9.69	44.56	25.58
4		9.92	44.97	25.98
5		9.71	45.26	26.16
1895.09	6	9.625	44.66	25.47
1895.	L. C.			
Nov. 7	E	10.27	45.80	26.38
13		9.83	44.68	25.67
19		9.97	45.01	25.77
Dec. 9		9.40	44.87	25.54
1895.91	4	9.867	45.09	25.84
1896.	L. C.			
Jan. 2	E	5 50.23	45.28	25.84
6		50.29	45.10	25.81
Feb. 7		50.14	45.81	26.31
12		50.93	45.75	26.69
1896.06	4	50.398	45.49	26.16
East	5	6 9.848	44.88	25.65
West	8	.723	44.59	25.44
East	8	.871	45.01	26.00
		9.809	44.82	25.70
Flex.			+.14	+.08
L. C.	21	18 6 9.809	86 36 44.96	25.78
U. C.	8, 9	9.973	45.43	24.94
L. C.	21	.809	44.96	25.78
Mean		9.891	45.19	25.36
Obs. – B. J.		–.345	+0.21	
Obs. – A. E.		–.387	+0.12	
Obs. – C. T.		–.96	+0.4	
Obs. – N. A.		–.084	+0.40	
Sec. δ 16.7				

χ DRACONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″	
B. J.	3.8	18 22 56.931	72 41 13.97	
A. E.		56.936	13.63	
Date. 1896.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
June 8	E	55.87	16.13	25.42
10		55.90	16.06	25.54
11		55.73	16.40	25.56
12		55.85	15.90	25.37
1896.44	4	55.837	16.12	25.47
Flex.			–.11	+.06
			16.01	
U. C.	4	18 22 56.919	72 41 14.38	25.53
Sys. Corr.			–.10	
			14.28	
Obs. – B. J.		–.012	+0.31	
Obs. – A. E.		–.017	+0.65	
Sec. δ 3.3				

τ DRACONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″	
B. J.	4.8	19 17 34.349	73 9 37.89	
A. E.		34.427	37.71	
Date. 1894.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Feb. 1	E	35.39	30.19	25.06
2		35.18	30.55	25.14
13		35.46	30.65	25.35
14		35.25	30.56	25.66
26		35.44	30.05	24.47
27		35.35	31.15	25.94
28		35.34	30.31	24.93
Mar. 12		——	31.32	25.77
1894.14	7, 8	35.344	30.60	25.29
1894.	L. C.			
Nov. 23	W	35.20	30.72	25.51
Dec. 13		35.48	30.76	25.62
1894.92	2	35.340	30.74	25.56
1895.				
Jan. 25		34.41	36.83	24.33
26		34.31	37.23	25.20
Feb. 18		34.29	35.86	23.87
20		34.28	38.03	26.26
27		34.23	37.26	25.58
28		34.35	36.65	24.97
1895.12	6	34.312	36.98	25.03
East	7, 8	34.219	37.36	25.29
West	8	.289	37.11	25.16
		34.256	37.24	25.22
Flex.			+.15	+.09
L. C.	15, 16	19 17 34.256	73 9 37.39	25.31
Sys. Corr.			+.10	
			37.49	
Obs. – B. J.		–.093	–0.40	
Obs. – A. E.		–.171	–0.22	
Sec. δ 3.7				

λ URSAE MINORIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	6.4	19 28 5.691	88 58 39.00
A. E.		6.432	39.31
C. T.		6.02	39.9
N. A.		5.417	39.35

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 13	E	30 17.81	24.79	24.94
14		16.83	24.11	25.34
15		17.56	24.08	25.52
20		17.45	25.29	24.95
22		16.39	24.53	25.42
25		18.29	24.73	25.37
1893.72	6	17.388	24.59	25.26
1894.	U. C.			
June 20	E	29 10.99	32.42	24.50
21		12.00	32.02	24.55
25		10.21	32.65	24.16
26		9.34	31.42	25.38
July 16		11.12	32.05	24.71
18		11.74	32.95	24.07
20		12.37	31.12	26.28
23		11.99	32.24	24.70
1894.51	8	11.220	32.11	24.79
1895.	U. C.			
July 15	W	28 4.88	39.09	25.49
16		5.78	39.52	25.07
17		5.69	39.47	25.29
19		[1.37]	39.65	25.44
30		4.85	39.29	25.27
31		4.37	39.39	24.96
Aug. 5		5.30	38.94	25.42
8		4.86	39.57	24.72
12		5.50	39.35	25.11
14		5.60	39.45	25.10
16		5.72	39.17	25.43
21		5.82	39.21	25.41
1895.59	11, 12	5.306	39.42	25.23
1896.	U. C.			
June 16	E	26 58.63	47.17	25.22
17		58.60	47.02	25.35
19		58.56	47.15	25.36
22		57.85	46.79	25.57
1896.47	4	58.410	47.03	25.37
East 14		28 5.020	39.73	24.99
West 11, 12		5.306	39.42	25.23
East 4		4.961	39.57	25.37
		5.120	39.58	25.14
Flex.			−.14	+.08
U. C. 29, 30		19 28 5.120	88 58 39.44	25.22

λ URSAE MINORIS.

Date.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
1894.	L. C.			
Mar. 14	E	29 10.50	32.32	26.84
21		10.79	31.54	25.79
22		11.23	31.56	26.09
23		9.86	31.76	25.95
1894.22	4	10.595	31.79	26.17
1895.	L. C.			
Jan. 28	W	28 4.99	39.22	26.30
29		4.85	40.22	27.64
30		5.62	39.11	26.18
31		5.25	39.18	26.32
1895.08	4	5.178	39.43	26.61
East	4	28 4.320	39.35	26.17
West	4	5.178	39.43	26.61
		4.749	39.39	26.39
Flex.			+.14	+.08
L. C.	8	19 28 4.749	88 58 39.53	26.47
U. C.	29, 30	5.120	39.44	25.22
L. C.	8	4.749	39.53	26.47
Mean		19 28 4.935	88 58 39.48	25.84
Obs. − B. J.		− .756	+0.48	
Obs. − A. E.		− 1.497	+0.17	
Obs. − C. T.		− 1.08	−0.4	
Obs. − N. A.		− .482	+0.13	
Sec. δ 55.4				

κ CEPHEI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.3	20 12 25.275	77 23 42.03
A. E.		25.316	42.52

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 14	E	29.23	20.30	25.46
20		29.19	20.59	25.96
25		29.21	20.70	25.71
1893.72	3	29.210	20.53	25.71
1894.	U. C.			
July 5	E	27.10	31.19	25.38
6		27.23	31.90	25.00
11		27.24	31.77	24.78
13		27.06	31.38	25.19
18		27.10	31.71	24.94
23		27.14	31.38	25.19
1894.53	6	27.145	31.56	25.08

κ CEPHEI.

Date. 1895.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
July 22	W	25.33	42.64	25.14
23		25.29	42.45	25.20
24		25.26	42.87	24.81
25		25.36	42.55	25.02
1895.56	4	25.310	42.63	25.04
1896.	U. C.			
June 16	E	23.33	53.53	25.40
17		23.35	53.34	25.58
19		23.40	53.42	25.63
22		23.42	53.74	25.16
1896.47	4	23.375	53.51	25.44
East	9	25.253	42.50	25.29
West	4	.310	42.63	25.04
East	4	.312	42.54	25.44
		25.281	42.54	25.27
Flex.			−.12	+.06
U. C.	17	20 12 25.281	77 23 42.42	25.33
1894.	L. C.			
Feb. 1	E	26.89	30.87	25.80
2		27.26	31.28	25.93
13		27.18	31.12	25.88
14		27.02	31.36	26.53
Mar. 14		27.49	30.58	25.45
21		27.44	30.65	25.27
22		27.36	30.58	25.48
23		27.38	31.58	26.14
1894.16	8	27.252	31.00	25.81
1895.	L. C.			
Jan. 28	W	25.30	42.77	26.82
29		25.30	[44.07]	[28.46]
30		25.30	41.34	25.38
31		25.22	41.93	26.04
Feb. 1		25.38	41.91	25.54
2		25.20	42.79	26.76
4		25.32	43.18	27.14
5		25.39	42.98	26.83
Mar. 4		25.18	41.72	25.37
1895.10	9, 8	25.288	42.33	26.23
East	8	25.316	41.96	25.81
West	9, 8	.288	42.33	26.23
		25.301	42.15	26.02
Flex.			+.15	+.09
L. C.	17, 16	20 12 25.301	77 23 42.30	26.11
U. C.	17	25.281	42.42	25.33
L. C.	17, 16	.301	42.30	26.11
Mean		20 12 25.291	77 23 42.36	25.72
Obs. − B. J.		+.016	+0.33	
Obs. − A. E.		−.025	−0.16	
Sec. δ 4.5				

76 DRACONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	6.0	20 50 10.831	82 8 31.88

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 2	E	18.75	5.04	25.30
3		18.83	5.18	25.66
5		18.84	5.17	25.46
10		18.84	5.16	25.78
1893.76	4	18.815	5.14	25.55
1895.	U. C.			
July 30	W	10.93	33.25	24.19
31		11.32	32.56	24.67
Aug. 5		10.83	32.75	24.49
8		10.64	32.62	24.55
1895.59	4	10.930	32.79	24.47
1895.	U. C.			
Sept. 4	E	10.97	31.98	25.43
6		10.95	31.39	25.82
19		10.86	31.63	25.77
23		10.77	31.43	25.78
1895.70	4	10.887	31.61	25.70
East	4	10.725	32.28	25.55
West	4	.930	32.79	24.47
East	4	.887	31.61	25.70
		10.847	32.23	25.24
Flex.			−.13	+.07
U. C.	12	20 50 10.847	82 8 32.10	25.31
1895.	L. C.			
Feb. 1	W	10.79	31.55	25.33
2		10.80	32.34	26.46
4		10.63	32.21	26.32
5		11.13	32.04	26.04
18		10.78	30.94	24.96
20		10.71	31.48	25.72
27		10.76	31.80	26.13
28		10.84	30.87	25.40
1895.12	8	10.805	31.65	25.79
1896.	L. C.			
Jan. 2	E	6.66	45.06	25.71
6		6.50	45.28	26.08
Feb. 7		6.83	45.53	26.12
12		6.32	44.55	25.58
1896.06	4	6.577	45.10	25.87
West	8	10.805	31.65	25.79
East	4	.629	31.53	25.87
		10.746	31.61	25.82
Flex.			+.14	+.09
L. C.	12	20 50 10.746	82 8 31.75	25.91
U. C.	12	10.847	32.10	25.31
L. C.	12	.746	31.75	25.91
Mean		20 50 10.796	31.93	25.61
Obs. − B. J.		−.035	+0.05	
Sec. δ 7.1				

BRADLEY 2777.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	5.8	21 7 35.805	77 42 1.70

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 13	E	38.06	——	——
15		37.97	41 32.92	25.26
22		37.96	33.36	25.17
1893.72	3, 2	37.997	33.14	25.22
1894.	U. C.			
July 16	E	36.89	47.11	25.24
20		36.80	47.80	25.19
1894.55	2	36.845	47.46	25.21
1895.	U. C.			
Aug. 12	W	35.78	42 1.02	26.14
14		35.76	0.70	26.55
16		35.80	1.63	25.67
21		35.78	1.54	25.78
1895 63	4	35.780	1.22	26.03
East	5, 4	35.762	2.30	25.22
West	4	.780	1.22	26.03
		35.770	1.76	25.62
Flex.			−.12	+.06
U. C.	9, 8	21 7 35.770	77 42 1.64	25.68
1894.	L. C.			
Apr. 2	E	37.02	——	——
3		37.05	41 46.22	24.59
4		37.05	47.14	25.70
5		37.12	47.56	26.45
1894.26	4, 3	37.060	46.97	25.58
Flex.			+.15	+.09
			47.12	
L. C.	4, 3	21 7 35.949	77 42 1.79	25.67
U. C.	9, 8	35.770	1.64	25.68
L. C.	4, 3	.949	1.79	25.67
Mean		21 7 35.860	77 42 1.71	25.68
Obs. − B. J.		+.055	+0.01	
Sec. δ 4.8				

β CEPHEI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.0	21 27 18.355	70 5 58.88
A. E.		18.270	58.87
C. T.		18.23	57.8
N. A.		18.223	58.65

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 2	E	16.74	27.57	25.41
3		16.86	——	——
5		16.76	27.71	25.56
10		16.59	28.44	25.14
11		16.67	28.15	25.35
12		16.69	27.95	25.44
13		16.71	27.95	25.97
17		16.65	27.70	25.87
1893.78	8, 7	16.709	27.92	25.53
Flex.			−.11	+.05
			27.81	
U. C.	8, 7	21 27 18.292	70 5 59.31	25.58
1894.	L. C.			
Feb. 26	E	17.41	43.12	25.54
28		17.55	——	——
1894.16	2, 1	17.480		
1895.	L. C.			
Apr. 2	W	18.32	59.07	25.90
5		18.42	60.28	[27.54]
8		18.26	60.43	26.89
1895.26	3	18.333	59.93	26.40
East	2, 1	18.271	58.87	25.54
West	3	.333	59.93	26.40
		18.308	59.67	26.11
Flex.			+.15	+.09
L. C.	5, 4	21 27 18.308	70 5 59.82	26.20
U. C.	8, 7	18.292	59.31	25.58
L. C.	5, 4	.308	59.82	26.20
Mean		21 27 18.300	70 5 59.56	25.89
Obs. − B. J.		−.055	+0.68	
Obs. − A. E.		+.030	+0.69	
Obs. − C. T.		+.07	+1.8	
Obs. − N. A.		+.077	+0.91	
Sec. δ 2.9				

24 CEPHEI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.8	22 7 47.269	71 49 26.35

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Sept. 13	E	44.96	48 50.64	26.27
15		44.86	50.78	26.00
20		44.93	52.12	25.30
22		45.01	50.96	26.17
25		44.97	51.41	25.87
Oct. 11		45.07	50.90	26.19
12		45.00	50.63	26.25
13		45.03	51.42	26.09
17		44.93	50.97	26.19
1893.75	9	44.973	51.09	26.04
1894.	U. C.			
July 16	E	46.13	49 8.26	25.72
18		45.98	8.17	26.07
20		46.05	9.36	25.26
23		46.16	8.12	26.04
1894.55	4	46.080	8.48	25.77
1894.	U. C.			
Oct. 3	W	46.29	8.91	25.36
4		46.19	8.52	25.44
5		46.18	8.64	25.30
9		46.17	8.82	25.51
10		46.14	8.65	25.49
12		46.23	9.01	25.29
16		46.17	9.09	25.15
22		46.18	9.05	25.51
1894.78	8	46.194	8.84	25.38
1895.	U. C.			
July 30	W	47.32	26.18	25.73
31		47.35	25.62	26.08
Aug. 5		47.39	26.34	25.37
8		47.48	26.36	25.28
1895.59	4	47.385	26.12	25.61
1895.	U. C.			
Sept. 4	E	47.33	26.24	25.64
6		47.32	25.75	25.93
19		47.37	—	—
23		47.38	25.87	25.81
1895.70	4, 3	47.350	25.95	25.79
East	13	47.277	26.38	25.95
West	12	.364	26.39	25.46
East	4, 3	.350	25.95	25.79
		47.323	26.44	25.72
Flex.			−.12	+.06
U. C.	29, 28	22 7 47.323	71 49 26.32	25.78

24 CEPHEI.

Date. 1894.	Obs. L. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Mar. 14	E	46.17	7.02	24.30
21		46.12	8.40	25.43
22		46.15	6.40	23.71
23		46.29	8.08	25.05
1894.22	4	46.182	7.47	24.62
1895.	L. C.			
Feb. 18	W	47.28	25.01	24.56
27		47.33	25.71	25.57
28		47.30	25.39	25.25
Apr. 10		47.32	26.16	25.40
11		47.30	26.89	26.18
15		47.35	26.72	25.89
17		47.30	25.85	25.11
1895.22	7	47.311	25.96	25.42
1896.	L. C.			
Jan. 2	E	48.51	43.60	25.66
6		48.47	42.67	24.88
Feb. 7		48.51	43.55	25.55
12		48.58	42.96	25.40
Mar. 10		48.45	42.69	24.35
12		48.53	43.62	25.15
Apr. 2		48.53	44.50	26.09
May 7		48.54	43.91	25.42
1896.16	8	48.515	43.44	25.31
East	4	47.342	25.16	24.62
West	7	.311	25.96	25.42
East	8	.355	25.75	25.31
		47.336	25.70	25.21
Flex.			+.15	+.09
L. C.	19	22 7 47.336	71 49 25.85	25.30
U. C.	29, 28	47.323	26.32	25.78
L. C.	19	.336	25.85	25.30
Mean		22 7 47.329	71 49 26.09	25.54
Obs. − B. J.		+.060	−0.26	
Sec. δ 3.2				

π CEPHEI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.6	23 4 33.473	74 49 11.39

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 2	E	29.63	48 31.73	26.44
3		29.68	32.18	25.90
13		29.52	32.32	25.39
14		29.57	32.34	25.30
1893.86	4	29.600	32.14	25.76

π CEPHEI.

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Oct. 25	W	31.54	52.42	24.87
29		31.65	52.37	25.07
Nov. 5		31.52	52.77	24.75
6		31.60	51.51	25.90
1894.84	4	31.578	52.27	25 15
1895.	U. C.			
Aug. 12	W	33.49	49 11.33	25.52
14		33.51	11.15	25.79
16		33.55	11.61	25.38
21		33.31	11.65	25.36
1895.63	4	33.465	11.44	25.51
East	4	33.391	11.00	25.76
West	8	.469	11.57	25.33
		33.443	11.38	25.47
Flex.			−.12	+.06
U. C.	12	23 4 33.443	74 49 11.26	25.53
1894.	L. C.			
Apr. 9	E	31.62	48 51.15	24.77
16		31.49	51.53	24.77
17		31.79	51.21	24.92
18		31.51	51.28	24.31
1894.29	4	31.602	51.29	24.69
1895.	L. C.			
Mar. 4	W	33.41	49 11.04	25.33
Apr. 2		33.42	11.86	26.18
5		33.46	11.65	26.40
8		33.41	11.85	25.80
1895.24	4	33.425	11.60	25.93
1896.	L. C.			
Mar. 10	E	35.20	30.39	25.28
12		35.32	31.05	25.81
Apr. 2		35.40	30.87	25.69
May 7		35.44	30.72	25.46
11		35.18	31.06	26.16
1896.27	5	35.308	30.82	25.68
East	4	33.497	10.72	24.69
West	4	.425	11.60	25.93
East	5	.411	11.40	25.68
		33.442	11.25	25.45
Flex.			+.15	+.09
L. C.	13	23 4 33.442	74 49 11.40	25.54
U. C.	12	33.443	11.26	25.53
L. C.	13	.442	11.40	25.54
Mean		23 4 33.442	74 49 11.33	25.54
Obs. − B. J.		−.031	−0.06	
Sec. δ 3.9				

γ CEPHEI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	3.3	23 35 2.267	77 2 46.16
A. E.		2.053	46.35
C. T.		2.32	46.7
N. A.		2.215	46.63

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″
Nov. 7	E	34 57.47	7.51	24.08
8		57.45	7.45	23.94
15		57.39	6.92	——
21		57.22	6.36	25.36
1893.87	4	57.382	7.06	24.46
1894.	U. C.			
Oct. 3	W	59.68	27.46	24.25
4		59.74	27.03	24.37
5		59.79	26.41	24.97
9		59.84	27.22	24.55
1894.76	4	59.762	27.03	24.54
1895.	U. C.			
Sept. 4	E	35 2.33	46.76	24.93
6		2.17	47.16	24.33
19		2.25	47.06	24.62
23		2.28	46.83	24.66
1895.70	4	2.257	46.95	24.63
East	4	2.222	47.19	24.46
West	4	.182	47.09	24.54
East	4	.257	46.95	24.63
		2.220	47.08	24.54
Flex.			−.12	+.06
U. C.	12	23 35 2.220	77 2 46.96	24.60
1894.	L. C.			
Apr. 2	E	34 60.03	——	——
3		59.80	25.76	25.06
4		60.00	26.46	25.95
5		59.82	26.76	26.58
1894.26	4, 3	59.912	26.33	25.86
Flex.			+.15	+.09
			26.48	
L. C.	4, 3	23 35 2.332	77 2 46.54	25.95
U. C.	12	2.220	46.96	24.60
L. C.	4, 3	.332	46.54	25.95
Mean		23 35 2.276	77 2 46.75	25.27
Obs. − B. J.		+.009	+0.59	
Obs. − A. E.		+.223	+0.40	
Obs. − C. T.		−.04	+0.1	
Obs. − N. A.		+.061	+0.12	
Sec. δ 4.5				

TABLE XIII. In the following table are given the comparisons of the observed places of circumpolar stars, with the various Ephemerides, including B. J.

The observed places are the direct mean, or half sum, of the two culminations, without reference to the number of observations made at each.

This process has been followed, for the elimination of systematic error, by which determinations at each culmination may be affected. For the details and results of comparison, see Table XX. Since there appears to be no difference between the determinations of Right Ascension, at the two culminations, a more exact place might be derived, by giving each culmination the weight proportional to the number of observations.

For 13 stars, observed at one culmination only, the corrections have been applied, in Declination: U. C. −0″.10, L. C. +0″.10. B. J. proper motions have been included in the reductions. The results have been corrected for flexure.

The separate values of the latitude, depending upon B. J. Declinations, are given for each star, at each culmination. These will have further discussion, Table XXV.

The average residuals for φ, at the two culminations, exhibit the influence of increased zenith distance upon the exactness of the determinations.

TABLE XIII.—OBSERVED PLACES OF B. J. CIRCUMPOLAR STARS. EPHEMERIS COMPARISON.

Star.	R. A. 1895.0	Decl. 1895.0	Obs.	U. φ L.		Obs. − B. J.		Obs. − A. E.		Obs. − C. T.		Obs. − N. A.	
	h m s	° ′ ″	U. L.	″	″	*s*	″	*s*	″	*s*	″	*s*	″
21 Cass. . .	0 38 42.846	+74 24 50.42	16 11	25.64	25.37	−.003	0.00	+.313	−0.39	. . .	. . .	. . .	. . .
43 H. Ceph.	0 54 24.619	+85 41 37.23	8 8	25.69	25.45	−.028	−0.22	+.035	−0.26	. . .	. . .	. . .	. . .
α Urs. Min.	1 20 29.389	+88 44 52.46	8 16	25.68	25.42	−.416	−0.19	−.685	−0.22	+.87	−0.4	+.768	−0.21
40 Cass. . .	1 30 7.407	+72 30 16.66	.. 4	. .	25.21	+.004	−0.22	. . .	. . .	. . .	. . .	. . .	. . .
50 Cass. . .	1 54 27.959	+71 54 46.24	16 4	25.57	24.57	−.095	−0.46	+.033	−0.84	. . .	. . .	. . .	. . .
36 H. Cass.	2 28 2.911	+72 21 31.11	8 15	25.63	25.41	−.187	−0.22	. . .	. . .	. . .	. . .	. . .	. . .
47 H. Ceph.	2 52 7.669	+79 0 12.28	.. 4	. .	25.13	−.261	−0.04	+.161	+0.72	. . .	. . .	. . .	. . .
48 H. Ceph.	3 6 59.910	+77 20 54.72	.. 8	. .	25.22	+.227	−0.04	+.123	+0.20	. . .	. . .	. . .	. . .
5 H. Cam. .	3 39 16.405	+71 0 29.53	13 4	25.60	25.84	+.092	−0.08	+.068	−0.10	. . .	. . .	. . .	. . .
Gr. 750 . .	4 3 39.151	+85 16 39.82	8 16	25.42	25.77	+.002	+0.18	. . .	. . .	−.44	−2.5	. . .	. . .
Gr. 848 . .	4 34 42.231	+75 44 57.75	16 11	25.81	24.96	−.078	−0.40	. . .	. . .	. . .	. . .	. . .	. . .
19 H. Cam.	5 5 15.127	+79 6 34.73	.. 14	. .	25.67	+.101	+0.02	. . .	. . .	. . .	. . .	. . .	. . .
Gr. 966 . .	5 25 40.950	+74 58 24.80	12 4	24.67	26.03	−.160	+0.81	−.620	−0.11	. . .	. . .	. . .	. . .
22 H. Cam.	6 7 16.530	+69 21 22.19	4 8	25.37	25.07	+.011	−0.25	+.241	+0.26	. . .	. . .	. . .	. . .
23 H. Cam.	6 28 18.530	+79 40 37.63	16 8	24.84	26.00	−.182	+0.69	. . .	. . .	. . .	. . .	. . .	. . .
51 H. Ceph.	6 51 15.505	+87 12 43.33	28 9	25.46	25.46	−.640	+0.15	+1.065	+0.15	−1.33	+1.9	+.121	+0.25
Gr. 1374 . .	7 47 37.397	+74 11 51.89	.. 18	. .	25.05	+.035	−0.48	.000	−0.45	. . .	. . .	. . .	. . .
Br. 1147 . .	8 6 20.814	+76 4 36.77	13 20	25.75	25.51	−.018	+0.08	. . .	. . .	. . .	. . .	. . .	. . .
1 H. Draco.	9 22 6.323	+81 47 24.17	10 26	25.74	25.00	+.099	−0.41	−.319	−0.37	. . .	. . .	. . .	. . .
Gr. 1586 . .	9 48 59.597	+73 22 42.52	18 8	26.05	24.89	−.010	−0.75	. . .	. . .	. . .	. . .	. . .	. . .
9 H. Draco.	10 26 9.980	+76 15 13.76	25 26	25.37	25.71	+.081	+0.25	−.557	+0.67	. . .	. . .	. . .	. . .
λ Draco. . .	11 25 10.131	+69 54 38.09	.. 12	. .	25.29	−.185	+0.06	+.043	+0.15	−.10	+1.3	−.062	+0.26
4 H. Draco.	12 7 16.632	+78 11 58.72	21 24	26.07	25.00	−.119	−0.59	−.570	−0.15	. . .	. . .	. . .	. . .
κ Draco. . .	12 29 0.038	+70 22 1.30	8 8	25.47	25.72	+.077	+0.27	−.138	+0.30	. . .	. . .	. . .	. . .
Gr. 2001 . .	13 23 27.334	+72 56 12.29	15 7	25.57	25.32	+.005	−0.08	. . .	. . .	. . .	. . .	. . .	. . .
4 Urs. Min.	14 9 15.401	+78 2 27.28	15 20	25.72	25.14	−.025	−0.22	−.030	−0.25	. . .	. . .	. . .	. . .
β Urs. Min.	14 51 0.567	+74 35 4.19	.. 8	. .	25 13	−.126	−0.16	−.119	−0.26	−.04	+0.7	−.101	−0.51
γ Urs. Min.	15 20 53.593	+72 12 27.21	12 ..	26.00	. .	−.320	−0.38	−.161	−0.19	−.78	−1.6	. . .	. . .
ζ Urs. Min.	15 47 48.407	+78 7 2.56	4 20	25.56	25.52	+.020	−0.09	−.308	−0.02	−.81	−0.5	+.049	−0.17
19 Urs. Min.	16 13 48.987	+76 8 30.77	12 ..	24.95	. .	+.069	+0.48	. . .	. . .	. . .	. . .	. . .	. . .

Star.	R. A. 1895.0	Decl. 1895.0	Obs.	U. φ L.	Obs. – B. J.	Obs. – A. E.	Obs. – C. T.	Obs. – N. A.
	h m s	° ′ ″	U. L.	″ ″	*s* ″	*s* ″	*s* ″	*s* ″
A. Draco.	16 28 11.202	+68 59 43.04	4 4	25.55 25.41	+.056 −0.16	− .305 +0.70	. . . .	. . . .
ε Urs. Min.	16 56 43.594	+82 12 35.20	12 16	25.44 25.62	−.195 +0.09	− .406 +0.30	− .52 0.0	+.023 +0.42
ψ Dr. Aus.	17 43 48.245	+72 12 1.17	24 ..	25.60 . .	+.011 +0.04	− .040 +0.39	. . . .	. . . .
35 Draco.	17 54 8.877	+76 58 35.45	.. 11	. . 25.79	−.106 +0.09	. . . .	. . . .	. . . .
δ Urs. Min.	18 6 9.891	+86 36 45.19	9 21	24.94 25.78	−.345 +0.21	− .387 +0.12	− .96 +0.4	−.084 +0.40
χ Draco.	18 22 56.919	+72 41 14.28	4 ..	25.53 . .	−.012 +0.31	− .017 +0.65	. . . .	. . . .
τ Draco.	19 17 34.256	+73 9 37.49	.. 16	. . 25.31	−.093 −0.40	− .171 −0.22	. . . .	. . . .
λ Urs. Min.	19 28 4.935	+88 58 39.48	30 8	25.22 26.47	−.756 +0.48	−1.497 +0.17	−1.08 −0.4	−.482 +0.13
κ Cephei	20 12 25.291	+77 23 42.36	17 17	25.33 26.11	+.016 +0.33	− .025 −0.16	. . . .	. . . .
76 Draco.	20 50 10.796	+82 8 31.93	12 12	25.31 25.91	−.035 +0.05	. . . .	. . . .	. . . .
Br. 2777	21 7 35.860	+77 42 1.71	9 4	25.68 25.67	+.055 +0.01	. . . .	. . . .	. . . .
β Cephei	21 27 18.300	+70 5 59.56	8 5	25.58 26.20	−.055 +0.68	+ .030 +0.69	+ .07 +1.8	+.077 +0.91
24 Cephei	22 7 47.329	+71 49 26.09	29 19	25.78 25.30	+.060 −0.26	. . . .	. . . .	. . . .
π Cephei	23 4 33.442	+74 49 11.33	12 13	25.53 25.54	−.031 −0.06	. . . .	. . . .	. . . .
γ Cephei	23 35 2.276	+77 2 46.75	12 4	24.60 25.95	+.009 +0.59	+ .223 +0.40	− .04 +0.1	+.061 +0.12

φ 36 stars U. C., 488 25″.49 $v \pm$″.25
φ 41 stars L. C., 491 25″.49 $v \pm$″.33
φ 32 stars, both culminations, 25″.51 $v \pm$″.12
φ All 45 stars, 25 .48 $v \pm$ .18

$\Delta\alpha$ Obs. – B. J., 45 stars, −ˢ.009 sec. δ $v \pm$ˢ.020 sec. δ
$\Delta\delta$ " " " 0″.00 $v \pm$″.26

$\Delta\alpha$ Obs. – A. E., 30 stars, −ˢ.019 sec. δ $v \pm$ˢ.043 sec. δ
$\Delta\delta$ " " " +0″.06 $v \pm$″.33

$\Delta\alpha$ Obs. – C. T., 12 stars, −ˢ.055 sec. δ $v \pm$ˢ.05 sec. δ
$\Delta\delta$ " " " +0″.06 $v \pm$1″.0

$\Delta\alpha$ Obs. – N. A., 10 stars, +ˢ.001 sec. δ $v \pm$ˢ.013 sec. δ
$\Delta\delta$ " " " +0″.16 $v \pm$″.29

From the same material, there result the following Ephemeris differences:

B. J. – A. E., 30 stars, −ˢ.008 sec. δ +0″.06
B. J. – C. T., 12 " − .030 " −0 .08
B. J. – N. A., 10 " + .023 " −0 .02

LIST 3. RESULTS OF OBSERVATIONS OF ZENITH STARS, FROM B. J.

The stars in this list are among those observed for the determination of bisection-error. For the 16 stars included, the observations were made upon nights when the Equatorial Fundamental stars were also taken; and the reduction of these places is in all respects identical with the method followed for stars not in B. J., except that the B. J. proper motions have been included.

Observations, made with the same aim, but upon nights when the Equatorial Fundamental stars were not observed, are not included here.

For comparisons of both sets of stars, see Tables XIV and XV, following the separate stars. There are included 96 observations, in this series.

μ ANDROMEDAE.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.0	0 50 55.536	+37 55 47.52
A. E.		55.416	47.56

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″	
Dec. 11	E	48.76	7.08	26.84	S
19		.81	7.93	26.12	N
28		——	——	26.32	S
29		.77	7.65	26.25	N
		48.76	7.08	26.58	S
		.79	7.79	26.18	N
1893.98	3	48.775	7.44	26.38	
Flex.			−.06	.00	
			7.38	26.38	
1895.0		0 50 55.407	+37 55 46.60		
Obs. − B. J.		−.129	−0.92		
Obs. − A. E.		−.009	−0.96		

β ANDROMEDAE.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	2.3	1 3 51.144	+35 3 50.32
A. E.		51.152	49.52
C. T.		51.03	51.0
N. A.		51.076	50.11

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″	
Dec. 11	E	44.40	11.72	25.83	N
19		.35	11.74	25.94	S
28		——	——	25.74	N
29		.31	11.23	26.30	S
		44.33	11.48	26.12	S
		.40	11.72	25.78	N
1893.98	3	44.365	11.60	25.95	
Flex.			−.05	.00	
			11.55	25.95	
1895.0		1 3 51.054	+35 3 49.94		
Obs. − B. J.		−.090	−0.38		
Obs. − A. E.		−.098	+0.42		
Obs. − C. T.		+.02	−1.1		
Obs. − N. A.		−.022	−0.17		

ρ PERSEI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.	2 58 26.788	+38 25 59.74

Date. 1893.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″	
Dec. 9	E	19.130	31.98	25.32	N
1894.					
Jan. 10	E	22.906	45.66	25.79	S
11		.937	46.34	25.05	N
12		23.033	45.39	25.76	S
		22.969	45.52	25.78	S
		.949	46.26	25.18	N
1894.01	4	22.959	45.89	25.48	
Flex.			−.06	.00	
			45.83	25.48	
1895.0		2 58 26.787	+38 25 60.02		
Obs. − B. J.		−.001	+0.28		

ξ PERSEI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.0	3 52 9.050	+35 29 19.50

Date. 1893.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″	
Dec. 9	E	1.300	28 59.13	25.10	S
1894.					
Jan. 10	E	5.168	29 9.54	25.24	N
11		.133	9.47	25.27	S
12		.161	9.29	25.21	N
		5.157	9.60	25.18	S
		.165	9.42	25.22	N
1894.01	4	5.161	9.51	25.20	
Flex.			−.05	.00	
			9.46	25.20	
1895.0		3 52 9.041	+35 29 20.06		
Obs. − B. J.		−.009	+0.56		

ϑ AURIGAE.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	3.0	5 52 33.694	+37 12 17.69
A. E.		33.716	17.54
C. T.		33.60	16.2

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″	
Feb. 1	E	29.520	16.81	26.31	S
2		.554	17.45	25.39	N
13		.489	17.51	25.44	S
14		.614	17.72	25.64	N
26		.554	16.87	25.80	S
27		.564	17.45	25.59	N
28		.580	17.79	25.08	S
Mar. 8		.610	17.22	25.60	N
12		.476	17.36	25.34	S
		29.524	17.27	25.59	S
		.586	17.46	25.55	N
1894.14	9	29.555	17.36	25.57	
Flex.			−.06	.00	
			17.30	25.57	
1895.0		5 52 33.646	+37 12 17.87		
Obs. − B. J.		−.048	+0.18		
Obs. − A. E.		−.070	+0.33		
Obs. − C. T.		+.05	+1.7		

51 AURIGAE.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	6.4	6 31 22.982	+39 28 58.85

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″	φ ″	
Feb. 26	E	18.852	29 1.61	25.62	N
27		.862	1.42	26.18	S
28		.841	1.52	25.91	N
Mar. 8		.760	1.27	26.11	S
12		.839	1.84	25.42	N
		18.811	1.34	26.15	S
		.844	1.66	25.65	N
1894.17	5	18.828	1.50	25.90	
Flex.			−.06	.00	
			1.44	25.90	
1895.0		6 31 22.988	+39 28 58.61		
Obs. − B. J.		+.006	−0.24		

GROOMBRIDGE 1450.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	6.4	8 26 5.366	+38 22 33.30

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″	
Feb. 1	E	1.561	46.78	24.66	N
2		.548	46.53	24.63	S
13		.390	46.65	24.62	N
14		.454	46.61	25.07	S
		1.501	46.57	24.85	S
		.475	46.71	24.64	N
1894.11	4	1.488	46.64	24.74	
Flex.			−.06	.00	
			46.58	24.74	
1895.0		8 26 5.396	+38 22 34.44		
Obs. − B. J.		+.030	+1.14		

η HERCULIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	3.1	16 39 17.790	+39 7 19.46
A. E.		17.734	19.20

Date. 1896.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″	
June 8	E	19.816	12.64	25.77	N
10		.836	12.27	26.19	S
11		.806	12.83	25.99	N
12		.771	11.61	26.52	S
16		.835	11.59	26.80	N
17		.762	12.75	25.63	S
19		.871	12.54	25.97	N
22		.770	12.93	25.43	S
24		.826	11.90	26.00	N
25		.806	11.69	26.18	S
26		.854	12.76	25.44	N
29		.743	11.98	26.10	S
		19.781	12.20	26.01	S
		.834	12.38	25.99	N
1896.46	12	19.807	12.29	26.00	
Flex.			−.06	.00	
			12.23	26.00	
1895.0		16 39 17.752	+39 7 19.23		
Obs. − B. J.		−.038	−0.23		
Obs. − A. E.		+.018	+0.03		

π HERCULIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	3.1	17 11 23.375	−36 55 38.90
A. E.		23.419	39.17
C. T.		23.32	40.6

Date. 1896.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″	
June 8		25.451	35.63	25.00	S
10		.478	35.35	25.33	N
11		.433	34.82	26.22	S
12		.448	35.07	25.28	N
16		.486	34.83	25.78	S
17		.449	34.73	25.87	N
19		.481	35.18	25.55	S
22		.461	35.01	25.57	N
24		.409	35.08	25.04	S
25		.479	34.37	25.72	N
26		.450	35.12	25.30	S
29		.479	34.12	26.18	N
		25.452	35.11	25.48	S
		.466	34.77	25.66	N
1896.46	12	25.459	34.94	25.57	
Flex.			−.06	.00	
			34.88	25.57	
1895.0		17 11 23.373	+36 55 39.10		
Obs. − B. J.		−.002	+0.20		
Obs. − A. E.		−.046	−0.07		
Obs. − C. T.		+.05	−1.5		

9 HERCULIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
B. J.	4.0	17 52 39.054	+37 15 52.27
A. E.		39.085	52.29

Date. 1896.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″	
June 24	E	41.160	51.54	25.55	S
25		.151	51.40	25.66	N
26		.146	51.89	25.50	S
29		.177	51.48	25.79	N
		41.153	51.72	25.52	S
		.164	51.44	25.72	N
1896.49	4	41.159	51.58	25.62	
Flex.			−.06	.00	
			51.52	25.62	
1895.0		17 52 39.105	+37 15 52.14		
Obs. − B. J.		+.051	−0.13		
Obs. − A. E.		+.020	−0.15		

α LYRAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	1.	18 33 23.008	+38 41 9.89
A. E.		23.022	9.24
C. T.		22.93	9.8
N. A.		22.962	9.57

Date. 1896.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″	
June 24	E	24.994	12.79	25.74	N
25		25.021	12.02	26.48	S
26		25.011	13.25	25.58	N
29		24.845	11.92	26.79	S
		24.933	11.97	26.64	S
		25.003	13.02	25.66	N
1896.49	4	24.968	12.49	26.15	
Flex.			−.06	.00	
			12.43	26.15	
1895.0		18 33 22.937	+38 41 9.23		
Obs. − B. J.		−.071	−0.66		
Obs. − A. E.		−.085	−0.01		
Obs. − C. T.		+.01	−0.6		
Obs. − N. A.		−.025	−0.34		

ε LYRAE PR.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.5	18 40 51.572	+39 33 37.34

Date. 1896.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″	
June 8	E	53.597	40.67	26.25	N
10		.643	40.61	26.36	S
11		.582	40.64	26.69	N
12		.568	40.37	26.27	S
		53.606	40.49	26.31	S
		.590	40.65	26.47	N
1896.44	4	53.598	40.57	26.39	
Flex.			−.06	.00	
			40.51	26.39	
1895.0		18 40 51.615	+39 33 36.88		
Obs. − B. J.		+.043	−0.46		

β LYRAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.	18 46 12.193	+33 14 27.49
A. E.		12.208	26.54
C. T.		12.08	26.8
N. A.		12.158	27.41

Date. 1896.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″	
June 8	E	14.382	31.48	25.99	S
10		.422	31.28	26.24	N
11		.279	31.42	26.46	S
12		.396	31.17	26.02	N
24		.369	31.10	25.86	S
25		.476	30.94	25.99	N
26		.356	31.11	26.14	S
29		.450	30.99	26.15	N
		14.347	31.28	26.11	S
		.436	31.10	26.10	N
1896.46	8	14.391	31.19	26.11	
Flex.			−.05	.00	
			31.14	26.11	
1895.0		18 46 12.178	+33 14 27.11		
Obs. − B. J.		−.015	−0.38		
Obs. − A. E.		−.030	+0.57		
Obs. − C. T.		+.10	+0.3		
Obs. − N. A.		+.020	−0.30		

γ CYGNI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	2.4	20 18 27.618	+39 55 14.61
A. E.		27.706	13.99
C. T.		27.51	15.0

Date. 1896.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″	
June 16	E	29.731	26.11	25.84	N
17		.716	24.87	27.07	S
19		.801	25.44	26.63	N
22		.716	25.10	26.82	S
24		.676	25.23	26.23	N
25		.722	25.11	26.32	S
26		.721	24.86	26.90	N
29		.699	25.38	26.26	S
		29.713	25.11	26.62	S
		.733	25.41	26.40	N
1896.48	8	29.723	25.26	26.51	
Flex.			−.06	.00	
			25.20	26.51	
1895.0		20 18 27.571	+39 55 13.79		
Obs. − B. J.		−.047	−0.82		
Obs. − A. E.		−.135	−0.20		
Obs. − C. T.		+.06	−1.2		

ε CYGNI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	2.6	20 41 57.765	+33 34 37.11
A. E.		57.778	36.79
C. T.		57.69	37.2

Date. 1896.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″	
June 16	E	60.200	50.76	25.64	S
17		.159	50.23	26.16	N
19		.139	50.87	25.65	S
22		.236	50.82	25.55	N
24		.107	50.46	25.45	S
25		.160	50.34	25.54	N
26		.173	50.24	25.97	S
29		.155	50.21	25.88	N
		60.155	50.58	25.68	S
		.177	50.40	25.78	N
1896.48	8	60.166	50.49	25.73	
Flex.			−.06	.00	
			50.43	25.73	
1895.0		20 41 57.740	+33 34 37.07		
Obs. − B. J.		−.025	−0.04		
Obs. − A. E.		−.038	+0.28		
Obs. − C. T.		+.05	−0.1		

ν CYGNI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
B. J.	4.0	20 53 15.517	+40 45 46.77
A. E.		15.506	46.49

Date. 1896.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″	φ ″	
June 24	E	17.643	59.82	26.15	N
25		.699	60.01	25.93	S
26		.668	59.62	26.65	N
29		.684	60.04	26.11	S
		17.691	60.02	26.02	S
		.655	59.72	26.40	N
1896.49	4	17.673	59.87	26.21	
Flex.			−.07	.00	
			59.80	26.21	
1895.0		20 53 15.438	+40 45 46.04		
Obs. − B. J.		−.079	−0.73		
Obs. − A. E.		−.068	−0.45		

TABLE XIV. This table includes 16 stars from B. J., which have been determined with the Equatorial stars as fundamental. The B. J. proper motions have been used in the reductions.

TABLE XIV.—OBSERVED PLACES OF B. J. ZENITH STARS. COMPARISON WITH EPHEMERIDES.

Star.	R. A. 1895.0 h	m	s	Decl. 1895.0 °	′	″	Obs.	φ	Obs. − B. J. s	″	Obs. − A. E. s	″	Obs. − C. T. s	″	Obs. − N. A. s	″
							E	″	s	″	s	″	s	″	s	″
μ Androm.	0	50	55.407	+37	55	46.60	3	26.38	−.129	−0.92	−.009	−0.96	. .	. .	. .	. .
β Androm.	1	3	51.054	+35	3	49.94	3	25.95	−.090	−0.38	−.098	+0.42	+.02	−1.1	−.022	−0.17
ρ Persei	2	58	26.787	+38	25	60.02	4	25.48	−.001	+0.28	. .	. .	. .	. .	. .	. .
ξ Persei	3	52	9.041	+35	29	20.06	4	25.20	−.009	+0.56	. .	. .	. .	. .	. .	. .
9 Aurigae	5	52	33.646	+37	12	17.87	9	25.57	−.048	+0.18	−.070	+0.33	+.05	+1.7	. .	. .
51 Aurigae	6	31	22.988	+39	28	58.61	5	25.90	+.006	−0.24	. .	. .	. .	. .	. .	. .
Gr. 1450	8	26	5.396	+38	22	34.44	4	24.74	+.030	+1.14	. .	. .	. .	. .	. .	. .
η Herculis	16	39	17.752	+39	7	19.23	12	26.00	−.038	−0.23	+.018	+0.03	. .	. .	. .	. .
π Herculis	17	11	23.373	+36	55	39.10	12	25.57	−.002	+0.20	−.046	−0.07	+.05	−1.5	. .	. .
9 Herculis	17	52	39.105	+37	15	52.14	4	25.62	+.051	−0.13	+.020	−0.15	. .	. .	. .	. .
α Lyrae	18	33	22.937	+38	41	9.23	4	26.15	−.071	−0.66	−.085	−0.01	+.01	−0.6	−.025	−0.34
ε Lyrae pr.	18	40	51.615	+39	33	36.88	4	26.39	+.043	−0.46	. .	. .	. .	. .	. .	. .
β Lyrae	18	46	12.178	+33	14	27.11	8	26.11	−.015	−0.38	−.030	+0.57	+.10	+0.3	+.020	−0.30
γ Cygni	20	18	27.571	+39	55	13.79	8	26.51	−.047	−0.82	−.135	−0.20	+.06	−1.2	. .	. .
ε Cygni	20	41	57.740	+33	34	37.07	8	25.73	−.025	−0.04	−.038	+0.28	+.05	−0.1	. .	. .
ν Cygni	20	53	15.438	+40	45	46.04	4	26.21	−.079	−0.73	−.068	−0.45	. .	. .	. .	. .
								″	s	″	s	″	s	″	s	″
16 stars. Mean							96	25.84	−.026	−0.16	−.049	−0.02	+.049	−0.36	−.009	−0.27
Average Residual from Mean							v	±0.37	±.042	±0.42	±.038	±0.32	±.02	±0.8	±.019	±0.07

TABLE XV. The stars in the table following were observed for bisection error, on nights when the Equatorial Fundamental stars were not observed for Equator Point and clock correction. The reductions have been made by means of the B. J. places of the zenith stars themselves, with proper motion included.

The results, as given here, may be used in establishing corrections to the different Ephemeris places, depending upon B. J. Declinations corresponding to the zenith, 37° 20′ 25″.

Right Ascensions were not observed in the position Circle East.

TABLE XV.—OBSERVATIONS OF ZENITH STARS. CORRECTIONS TO EPHEMERIDES. 1895.0.

Star.	B. J. R. A.	B. J. Decl.	Obs.		φ	Obs. − B. J.		Obs. − A. E.		Obs. − C. T.		Obs. − N. A.	
	h m s	° ′ ″	E	W	″	*s*	″	*s*	″	*s*	″	*s*	″
π Herculis	17 11 23.375	+36 55 38.90	2	.	24.88	. .	+0.59	. .	+0.32	. .	−1.1	. .	. .
9 Herculis	17 52 39.054	+37 15 52.27	2	.	25.39	. .	+0.08	. .	+0.06	. .	. .	. .	. .
α Lyrae	18 33 23.008	+38 41 9.89	2	.	25.90	. .	−0.43	. .	+0.22	. .	−0.3	. .	−0.11
ε Lyrae pr.	18 40 51.572	+39 33 37.34	2	4	25.87	+.020	−0.22	. .	. .	. .	. .	. .	. .
β Lyrae	18 46 12.193	+33 14 27.49	2	4	25.93	−.020	−0.29	−.035	+0.66	+.09	+0.4	+.015	−0.21
γ Lyrae	18 55 0.915	+32 32 44.31	2	4	25.23	+.025	+0.42	−.027	+0.43	+.04	−0.3	. .	. .
ι Lyrae	19 3 33.317	+35 56 8.41	2	4	25.50	−.063	+0.14	−.077	+0.14	. .	. .	. .	. .
9 Lyrae	19 12 43.333	+37 56 47.96	.	4	25.31	+.037	+0.42	+.025	+0.41	. .	. .	. .	. .
15 Cygni	19 40 29.419	+37 6 2.65	2	4	25.48	−.060	+0.16	. .	. .	. .	. .	. .	. .
γ Cygni	20 18 27.618	+39 55 14.61	2	4	25.93	−.077	−0.29	−.165	+0.33	+.03	−0.7	. .	. .
ε Cygni	20 41 57.765	+33 34 37.11	.	4	25.36	−.020	+0.37	−.033	+0.69	+.05	+0.3	. .	. .
ν Cygni	20 53 15.517	+40 45 46.77	.	4	26.41	−.033	−0.68	−.022	−0.40	. .	. .	. .	. .
61 Cygni pr.	21 2 11.269	+38 13 58.65	2	4	25.55	+.178	+0.10	+.068	−0.08	(+.37)	+0.3	+.131	+0.42
τ Cygni	21 10 35.960	+37 35 50.32	2	.	26.01	. .	−0.54	. .	−0.31	. .	(−3.5)	. .	. .
					″	*s*	″	*s*	″	*s*	″	*s*	″
14 stars. Means			22	40	25.63	.000	0.00	−.033	+0.20	+.052	−0.20	+.073	+0.03
v					±.33	±.038	± .34	±.044	± .27	±.02	±0.5	±.058	± .26

Since 8 stars in this table occur also in Table XIV, the comparison of the two furnishes the systematic corrections, necessary to reduce Table XV to the Fundamental Equatorial system. These corrections are $+^{s}.003$ and $-0''.27$; and the application produces the following places for the 6 remaining stars:

OBSERVED PLACES, REDUCED TO EQUATORIAL FUNDAMENTAL SYSTEM. 1895.0.

Star.	Obs. R. A.	Obs. Decl.	Obs.	Obs. − B. J.		Obs. − A. E.		Obs. − C. T.		Obs. − N. A.	
	h m s	° ′ ″		*s*	″	*s*	″	*s*	″	*s*	″
γ Lyrae	18 55 0.943	+32 32 44.46	6	+.028	+0.15	−.024	+0.16	+.04	−0.5	. .	. .
ι Lyrae	19 3 33.257	+35 56 8.28	6	−.060	−0.13	−.074	−0.13	. .	. .	. .	. .
9 Lyrae	19 12 43.373	+37 56 48.11	4	+.040	+0.15	+.028	+0.14	. .	. .	. .	. .
15 Cygni	19 40 29.362	+37 6 2.54	6	−.057	−0.11	. .	. .	. .	. .	. .	. .
61 Cygni pr.	21 2 11.450	+38 13 58.48	6	+.181	−0.17	+.071	−0.35	(+.37)	+0.1	+.134	+0.15
τ Cygni	21 10 ——	+37 35 49.51	2	. .	−0.81	. .	−0.58	. .	(−3.8)	. .	. .

LIST 4. OBSERVATIONS OF EPHEMERIS STARS, NOT IN THE BERLINER JAHRBUCH.

This list comprises in all 160 stars; of which two are south of —40°, and were dropped from the program after making a set of observations, which were unsatisfactory. One star is given in B. J., and was included by overlooking the error of the C. T. Right Ascension, (see note on opposite page). Its place has been derived, from the observations, without reference to the B. J. position.

For all these stars, four observations have been secured in each position of the instrument, Circle East and West. And for 15 stars, above 70°, eight have been secured at each culmination, four in each position.

The series includes 1419 observations, with rare exceptions complete in both coördinates. The two positions, East and West, are given the same weight, although there are occasionally extra observations, made in one of them. The direct mean, or half sum, of the two culminations of circumpolar stars, is, also, taken. The mean systematic error of the B. J. Declinations will thus be eliminated, from the stars North of 70°. Except for these stars, the Right Ascensions and Declinations are subject to the errors of the list of B. J. fundamental stars.

But one determination of Right Ascension has been rejected, for reason of a large residual. In Declination, six have been rejected, four of which are for stars below 71° South zenith distance. This is less than one half of one per cent.

No proper motions have been included in the reductions; but for the comparison with the Ephemeris place, the effect of proper motion, from the Ephemeris, is taken into account.

The Precession has been computed with the constants for 1895.0 (Peters and Struve):

m	n	log. n	log. $\frac{n}{15}$
$+3^s.0726$	20″.052	1.30217	0.12608

The proper motion is then obtained from the difference, between the precession, and the "Annual Variation" given in the Ephemerides; except for C. T., in which the proper motion is given. The British Nautical Almanac, for 1896, includes the statement of the proper motion adopted; while the *Connaissance des Temps* drops both that, and the annual variation, in the same year.

In the Results, the number of the star is from the current observing list; and corresponds with the number employed in the details of observation, given earlier in this volume.

Places are quoted from A. E., C. T., N. A.; and from N. A. 1897, when the star is not included in earlier lists. Comparison with 303 is also made; although this plan does not include stars from that list, which do not occur in one of the others, above referred to.

Precession and proper motions will be found in List 5, at the close of the volume. Flexure has been applied to the final results. No systematic corrections have been applied. For statement of systematic differences, and of probable error, reference may be made to Tables XX, XXI, and XXII.

The following *errata*, in the Ephemerides for 1895, have been noted:

C. T. γ^2 Sagit. R. A. should be $17^h\ 59^m$ in place of $18^h\ 0^m$. This error occurs every year.
A. E. ψ Capric. $20^h\ 39^m$. Annual Variations should be $3^s.5598$ and $12''.719$ in place of $3^s.5576$ and $12''.711$.
C. T. 4 Pis. Aus. $21^h\ 11^m$. Proper motion in Decl. should be $-''.04$ in place of $+''.04$

No. 1. ρ ANDROMEDAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.4	0 12 50.537	+36 12 10.86

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 7	E	44.188	11 31.54
8		.188	31.56
15		.222	32.08
17		.169	31.39
1893.87	4	44.192	31.64
1894.			
Oct. 10	W	47.206	11 51.10
12		.250	50.73
16		.286	51.31
22		.309	50.91
1894.79	4	47.263	51.01
East	4	50.446	12 11.68
West	4	.390	11.03
			11.35
Flex.			−.06
1894.33	8	0 12 50.418	+36 12 11.29
P. M.		−.002	+.03
Obs. − A. E.		−.121	+0.40

No. 2. 44 PISCIUM.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.8	0 20 1.175	+1 21 29.38

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 2	E	19 54.976	20 48.86
3		55.079	49.11
13		.032	48.81
14		.994	49.51
1893.86	4	55.020	49.07
1894.			
Oct. 10	W	19 58.168	21 9.29
12		.084	9.12
16		.098	9.24
22		.186	9.34
1894.79	4	58.134	9.25
East	4	20 1.170	21 29.01
West	4	.209	29.22
			29.11
Flex.			.00
1894.32	8	0 20 1.190	+1 21 29.11
P. M.		−.001	−.01
Obs. − A. E.		+.014	−0.28

No. 4. 13 CETI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	5.5	0 29 50.46	−4 10 15.4

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 2	E	44.398	55.18
3		.466	55.28
13		.463	55.90
14		.425	55.29
1893.86	4	44.438	55.41
1894.			
Oct. 3	W	47.551	35.52
4		.480	35.30
5		.555	34.60
9		.528	35.19
1894.76	4	47.528	35.15
East	4	50.558	15.65
West	4	.588	15.27
			−15.46
Flex.			+.01
1894.31	8	0 29 50.573	−4 10 15.45
P. M.		+.017	−.02
Obs. − C. T.		+.13	−0.1

No. 5. PIAZZI 130.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	5.6	0 31 57.05	−25 20 44.1

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 7	E	51.014	21 22.15
8		50.993	22.18
15		.047	21.26
21		.023	22.86
1893.87	4	51.019	22.11
1894.			
Oct. 10	W	54.146	21 3.35
12		.124	3.54
16		.116	3.34
22		.141	2.92
1894.79	4	54.132	3.29
East	4	56.988	20 42.39
West	4	57.116	43.43
			−42.91
Flex.			+.03
1894.33	8	0 31 57.052	−25 20 42.88
P. M.		+.069	−.04
Obs. − C. T.		+.07	+1.2

No. 6. PIAZZI 189.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	5.7	0 42 52.08	+4 44 25.2

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 2	E	46.220	43 47.80
3		.259	48.09
13		.272	47.78
14		.198	48.26
1893.86	4	46.237	47.98
1894.			
Oct. 3	W	49.349	44 7.50
4		.308	7.12
5		.381	7.11
9		.380	8.52
1894.76	4	49.354	7.56
East	4	52.423	27.38
West	4	.447	27.26
			27.32
Flex.			.00
1894.31	8	0 42 52.435	+4 44 27.32
P. M.		+.027	−.82
Obs. − C. T.		+.38	+1.3

No. 7. ν ANDROMEDAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	4.5	0 44 1.10	+40 30 25.4

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 7	E	43 54.740	29 45.71
8		.796	45.50
15		.759	46.63
21		.741	44.68
1893.87	4	54.759	45.63
1894.			
Oct. 10	W	57.950	30 5.16
12		.952	5.12
16		.961	5.66
22		58.001	5.29
1894.79	4	57.966	5.31
East	4	44 1.340	24.99
West	4	.256	24.99
			24.99
Flex.			−.06
1894.33	8	0 44 1.298	+40 30 24.93
P. M.		−.001	−.01
Obs. − C. T.		+.20	−0.5

No. 129. α SCULPTORIS.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
C. T.	4.2	0 53 32.76	−29 55 30.2

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Oct. 10	W	29.955	50.02
12		.903	50.44
16		.944	50.73
22		.930	50.55
1894.79	4	29.933	50.43
1895.			
Oct. 1	E	32.880	30.45
7		.833	30.46
9		.770	31.04
24		.777	30.71
1895.78	4	32.815	30.66
West	4	32.827	30.92
East	4	.815	30.66
			−30.79
Flex.			+.03
1895.28	8	0 53 32.821	−29 55 30.76
P. M.		+.001	.00
Obs. − C. T.		+.06	−0.6

No. 8. μ CASSIOPEIAE.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
C. T.	5.3	1 1 17.02	+54 24 19.6

Date. 1893.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Nov. 2	E	9.471	23 41.89
3		.466	41.95
13		.390	42.32
14		.417	42.00
1893.86	4	9.436	42.04
1894.			
Oct. 10	W	13.325	59.50
12		.272	58.92
16		.339	59.50
22		.318	59.70
1894.79	4	13.313	59.40
East	4	16.568	24 20.72
West	4	.879	18.74
			19.73
Flex.			−.09
1894.32	8	1 1 16.723	+54 24 19.64
P. M.		+.262	−1.04
Obs. − C. T.		−.03	−1.0

No. 9. f PISCIUM.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
A. E.	5.1	1 12 22.911	+3 3 41.25

Date. 1893.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Nov. 7	E	16.755	2.45
8		.663	3.20
15		.736	3.65
21		.737	3.04
1893.87	4	16.723	3.08
1894.			
Oct. 10	W	19.816	22.55
12		.786	22.18
16		.802	21.85
22		.848	22.63
1894.79	4	19.813	22.30
East	4	22.913	41.20
West	4	.908	41.36
			41.28
Flex.			.00
1894.33	8	1 12 22.910	+3 3 41.28
P. M.		−.003	−.02
Obs. − A. E.		−.004	+0.01

No. 10. 38 CASSIOPEIAE.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
A. E.	5.9	1 23 24.839	+69 43 26.62

Date. 1893.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Nov. 2	E	16.170	42 49.05
3		.181	48.98
13		.205	49.55
14		.151	49.37
1893.86	4	16.177	49.24
1894.			
Oct. 10	W	20.463	43 8.31
12		.420	8.28
16		.456	7.74
22		.410	8.54
1894.79	4	20.437	8.22
East	4	24.895	26.72
West	4	.797	26.96
			26.84
Flex.			−.11
1894.32	8	1 23 24.846	+69 43 26.73
P. M.		+.017	−.05
Obs. − A. E.	Sec. δ 2.9	+.024	+0.06

No. 11. υ ANDROMEDAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.2	1 30 38.051	+40 52 49.26

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 2	E	30.999	11.59
3		.969	12.39
13		.886	12.66
14		.940	12.65
1893.86	4	30.948	12.32
1894.			
Oct. 10	W	34.403	29.88
12		.386	29.68
16		.464	29.70
22		.432	30.20
1894.79	4	34.421	29.86
East	4	37.984	49.33
West	4	.939	48.36
			48.84
Flex.			−.06
1894.32	8	1 30 37.961	+40 52 48.78
P. M.		−.008	−.25
Obs. − A. E.		−.098	−0.73

No. 12. π PISCIUM.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.5	1 31 31.913	+11 36 16.26

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 7	E	25.506	35 38.38
8		.529	38.42
15		.478	37.59
21		.438	38.13
1893.87	4	25.488	38.13
1894.			
Oct. 25	W	28.653	35 56.37
29		.717	56.46
Nov. 5		.690	56.71
6		.656	56.28
1894.84	4	28.679	56.46
East	4	31.846	15.08
West	4	.858	14.93
			15.00
Flex.			−.01
1894.36	8	1 31 31.852	+11 36 14.99
P. M.		−.003	+.03
Obs. − A. E.		−.064	−1.24

No. 13. ξ 1 CETI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.5	2 7 26.059	+8 21 14.37

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 7	E	19.706	20 40.45
8		.628	40.54
15		.630	39.46
21		.657	39.86
1893.87	4	19.655	40.08
1894.			
Oct. 25	W	22.800	20 57.12
29		.846	57.81
Nov. 5		.762	57.26
6		.831	57.11
1894.84	4	22.810	57.32
East	4	26.007	21 14.15
West	4	25.986	14.35
			14.25
Flex.			−.01
1894.36	8	2 7 25.996	+8 21 14.24
P. M.		−.001	−.01
Obs. − A. E.		−.064	−0.14

No. 14. PIAZZI 123.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	5.9	2 30 19.23	+6 23 4.0

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Dec. 6	E	12.899	22 35.22
11		.919	35.06
19		.881	34.87
29		.907	34.96
1893.96	4	12.901	35.03
1894.			
Nov. 8	W	16.189	22 51.69
14		.176	51.44
16		.150	52.20
19		.140	51.70
1894.87	4	16.164	51.76
East	4	19.229	23 6.81
West	4	.328	7.65
			7.23
Flex.			−.01
1894.41	8	2 30 19.278	+6 23 7.22
P. M.		+.069	+.76
Obs. − C. T.		+.12	+4.0

No. 132. β FORNACIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	4.5	2 44 41.80	−32 50 49.6

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Oct. 25	W	39.311	51 5.46
29		.275	4.65
Nov. 5		.331	5.10
6		.284	5.26
1894.84	4	39.300	5.12
1895.			
Oct. 1	E	41.777	50 49.75
7		.783	49.88
9		.854	51.01
24		.814	50.52
1895.78	4	41.807	50.29
West	4	41.804	50.04
East	4	.807	50.29
			−50.16
Flex.			+.04
1895.31	8	2 44 41.806	−32 50 50.12
P. M.		−.002	−.05
Obs. − C. T.		.00	−0.6

No. 15. σ ARIETIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.5	2 45 41.685	+14 38 56.77
N. A.		41.618	57.00

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Dec. 6	E	35.092	27.24
11		.067	27.20
19		.029	27.75
29		.071	27.53
1893.96	4	35.065	27.43
1894.			
Nov. 8	W	38.390	41.80
14		.375	41.73
16		.363	41.78
19		.349	42.04
1894.87	4	38.369	41.84
East	4	41.672	57.51
West	4	.673	56.88
			57.19
Flex.			−.02
1894.41	8	2 45 41.672	+14 38 57.17
P. M.		+.001	−.02
Obs. − A. E.		−.012	+0.38
Obs. − N. A.		+.055	+0.15

No. 16. ε ARIETIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.6	2 53 12.436	+20 55 13.09
C. T.		12.42	13.1

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Dec. 6	E	5.507	54 43.63
11		.574	43.44
19		.545	43.50
29		.580	43.43
1893.96	4	5.551	43.50
1894.			
Oct. 25	W	8.925	54 57.70
29		.998	57.79
Nov. 5		.905	57.96
6		.947	57.82
1894.84	4	8.944	57.82
East	4	12.397	12.68
West	4	.367	12.41
			12.54
Flex.			−.03
1894.40	8	2 53 12.382	+20 55 12.51
P. M.		−.001	.00
Obs. − A. E.		−.055	−0.58
Obs. − C. T.		−.04	−0.6

No. 133. τ 3 ERIDANI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	4.1	2 57 45.69	−24 2 10.2
303.		45.752	10.24

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Oct. 25	W	43.051	25.81
29		.065	25.01
Nov. 5		.106	25.69
6		.139	26.60
1894.84	4	43.090	25.78
1895.			
Oct. 1		45.819	10.82
7		.745	11.08
24		.784	11.25
Nov. 7		.753	10.58
1895.80	4	45.775	10.93
West	4	45.745	11.46
East	4	.775	10.93
			−11.19
Flex.			+.03
1895.32	8	2 57 45.760	−24 2 11.16
P. M.		+.004	+.01
Obs. − C. T.		+.07	−0.9
Obs. − 303.		+.012	−0.91

No. 17. ζ ARIETIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.8	3 8 51.914	+20 39 18.33

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Dec. 6	E	44.978	38 51.87
11		.991	51.29
19		45.007	51.50
29		.004	51.21
1893.96	4	44.995	51.47
1894.			
Nov. 8	W	48.472	39 4.51
14		.416	4.62
16		.369	4.76
19		.430	4.68
1894.87	4	48.422	4.64
East	4	51.880	18.71
West	4	.864	18.26
			18.49
Flex.			−.03
1894.41	8	3 8 51.872	+20 39 18.46
P. M.		−.001	−.05
Obs. − A. E.		−.043	+0.08

No. 18. A 1 TAURI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.6	3 58 29.238	+21 47 40.18
N. A.		29.179	41.24

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Dec. 6	E	22.061	20.56
11		.109	21.11
19		.085	20.62
29		.155	20.56
1893.96	4	22.102	20.71
1894.			
Nov. 8	W	25.555	31.00
14		.674	31.23
16		.640	31.15
19		.651	31.14
1894.87	4	25.630	31.13
East	4	29.169	40.99
West	4	.164	41.27
			41.13
Flex.			−.03
1894.41	8	3 58 29.166	+21 47 41.10
P. M.		+.004	−.04
Obs. − A. E.		−.068	+0.88
Obs. − N. A.		−.009	−0.18

No. 19. o 2 ERIDANI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	4.5	4 10 26.48	−7 48 59.1

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Dec. 9	E	20.671	49 14.00
1894.			
Jan. 10		23.488	5.32
11		.592	5.08
12		.592	6.13
1894.03	3	23.557	5.51
1894.			
Nov. 23	W	23.420	8.25
Dec. 13		.420	7.99
1894.93	2	23.420	8.12
1895.			
Jan. 25		26.326	48 59.32
26		.340	59.43
1895.07	2	26.333	59.38
East	4	26.473	56.09
West	4	26.331	59.13
			−57.61
Flex.			+.01
1894.51	8	4 10 26.402	−7 48 57.60
P. M.		−.072	−1.71
Obs. − C. T.		−.15	−0.2

No. 202. v 4 ERIDANI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
N. A. '97	3.3	4 13 55.030	−34 3 17.16

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 8	W	53.006	27.07
14		.007	27.07
16		.031	27.48
19		.003	27.15
1894.87	4	53.012	27.19
1895.			
Nov. 7	E	55.219	18.95
13		.283	16.99
19		.238	18.10
Dec. 9		.210	18.26
1895.89	4	55.238	18.08
West	4	55.276	18.24
East	4	.238	18.08
			−18.16
Flex.			+.04
1895.38	8	4 13 55.257	−34 3 18.12
P. M.		.000	.00
Obs. − N. A.		+.227	−0.96

No. 135. d ERIDANI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	4.0	4 20 5.55	−34 15 39.8

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 8	W	3.291	47.95
14		.358	48.02
16		.342	48.38
19		.322	47.93
1894.87	4	3.328	48.07
1895.			
Nov. 7	E	5.512	40.10
13		.573	39.00
19		.579	39.24
Dec. 9		.590	40.10
1895.89	4	5.563	39.61
West	4	5.575	39.60
East	4	.563	39.61
			−39.60
Flex.			+.04
1895.38	8	4 20 5.569	−34 15 39.56
P. M.		−.002	−.01
Obs. − C. T.		+.02	+0.2

No. 20. m PERSEI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	6.0	4 26 1.602	+42 50 20.75

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Dec. 6	E	25 53.139	5.78
11		.128	5.73
19		.137	5.63
29		.238	5.75
1893.96	4	53.160	5.72
1894.			
Nov. 8	W	57.310	13.20
14		.327	13.38
16		.235	13.29
19		.351	13.23
1894.87	4	57.306	13.28
East	4	1.579	21.71
West	4	.515	21.27
			21.49
Flex.			−.07
1894.41	8	4 26 1.547	+42 50 21.42
P. M.		+.001	−.01
Obs. − A. E.		−.054	+0.66

No. 21. π 1 ORIONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	3.3	4 44 8,51	+6 46 39.7
N. A. '97		8.303	38.44

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Dec. 6	E	1.904	26.70
11		.877	27.11
19		.890	26.75
29		.941	27.01
1893.96	4	1.903	26.89
1894.			
Nov. 8	W	5.156	33.48
14		.145	33.95
16		.188	33.44
19		.123	33.65
1894.87	4	5.153	33.63
East	4	8.349	39.93
West	4	.376	40.15
			40.04
Flex.			−.01
1894.41	8	4 44 8.362	+6 46 40.03
P. M.		+.018	+.01
Obs. − C. T.		−.13	+0.3
Obs. − N. A. '97		+.077	+1.60

No. 22. i TAURI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.2	4 45 13.875	+18 39 38.71

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Dec. 9	E	6.855	26.85
1894.			
Jan. 10	E	10.337	32.37
11		.333	32.83
12		.359	32.38
1894.03	3	10.343	32.53
1894.			
Nov. 23	W	10.324	33.11
Dec. 13		.338	33.07
1894.93	2	10.331	33.09
1895.			
Jan. 25	W	13.857	39.67
26		.796	39.07
1895.07	2	13.827	39.37
East	4	13.846	39.14
West	4	.829	39.44
			39.29
Flex.			−.02
1894.51	8	4 45 13.837	+18 39 39.27
P. M.		+.002	−.02
Obs. − A. E.		−.036	+0.54

No. 23. 11 ORIONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	4.7	4 58 34.102	+15 15 27.11

Date.	Obs.	Mean R. A.	Mean Decl.
1893.		h m s	° ′ ″
Dec. 9	E	27.284	17.30
1894.			
Jan. 10	E	30.639	21.93
11		.680	21.59
12		.661	21.81
1894.03	3	30.660	21.78
1894.			
Nov. 8	W	30.683	21.46
14		.680	21.41
16		.636	21.45
19		.649	21.88
1894.87	4	30.662	21.55
East	4	34.096	27.30
West	4	.086	26.86
			27.08
Flex.			−.02
1894.45	8	4 58 34.091	+15 15 27.06
P. M.		+.001	−.02
Obs. − A. E.		−.010	−0.07

No. 203. μ LEPORIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
N. A. '97	3.3	5 8 12.855	−16 19 48.22

Date.	Obs.	Mean R. A.	Mean Decl.
1894.		h m s	° ′ ″
Nov. 8	W	10.197	52.29
14		.182	52.52
16		.178	52.57
19		.171	52.04
1894.87	4	10.182	52.36
1895.			
Nov. 7	E	12.921	48.92
13		.841	48.08
19		.933	48.37
Dec. 9		.817	48.45
1895.89	4	12.878	48.46
West	4	12.873	47.87
East	4	.878	48.46
			−48.16
Flex.			+.02
1895.38	8	5 8 12.876	−16 19 48.14
P. M.		.000	+.01
Obs. − N. A. '97		+.021	+0.09

No. 24. λ AURIGAE.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	5.0	5 11 45.24	+40 0 20.2

Date.	Obs.	Mean R. A.	Mean Decl.
1894.		h m s	° ′ ″
Feb. 1	E	41.038	15.63
2		.008	15.81
13		.016	16.16
14		.064	16.71
1894.11	4	41.031	16.08
1894.			
Nov. 23	W	41.076	14.96
Dec. 13		.080	15.19
1894.93	2	41.078	15.08
1895.			
Jan. 25	W	45.193	19.06
26		.226	18.87
1895.07	2	45.210	18.97
East	4	45.201	20.27
West	4	.229	19.12
			19.70
Flex.			−.06
1894.56	8	5 11 45.215	+40 0 19.64
P. M.		+.021	−.30
Obs. − C. T.		.00	−0.9

No. 137. o COLOMBAE.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	5.1	5 13 41.82	−34 59 53.1

Date.	Obs.	Mean R. A.	Mean Decl.
1894.		h m s	° ′ ″
Nov. 8	W	39.743	57.33
14		.708	57.23
16		.719	57.38
19		.728	57.41
1894.87	4	39.724	57.34
1895.			
Nov. 7	E	41.852	54.73
13		.900	[51.19]
19		.834	54.45
Dec. 9		.818	54.68
1895.89	4, 3	41.851	54.62
West	4	41.879	53.32
East	4, 3	.851	54.62
			−53.97
Flex.			+.04
1895.38	8, 7	5 13 41.865	−34 59 53.93
P. M.		−.002	+.13
Obs. − C. T.		+.04	−0.7

No. 25. χ AURIGAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.0	5 25 53.704	+32 6 51.76

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Feb. 1	E	49.666	47.94
2		.687	47.41
13		.606	47.44
14		.688	47.20
1894.11	4	49.662	47.50
1894.			
Nov. 8	W	49.693	47.30
14		.665	47.34
16		.666	47.34
19		.671	47.54
1894.87	4	49.674	47.38
East	4	53.564	50.48
West	4	.576	50.36
			50.42
Flex.			−.05
1894.49	8	5 25 53.570	+32 6 50.37
P. M.		+.002	+.01
Obs. − A. E.		−.132	−1.38

No. 26. GROOMBRIDGE 944.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	6.4	5 28 21.697	+85 8 36.75

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″
Dec. 9	E	27 43.54	31.17
1894.	U. C.		
Jan. 10	E	28 2.14	33.55
11		2.48	34.00
12		2.27	33.01
1894.03	3	2.297	33.52
1894.	U. C.		
Nov. 23	W	2.73	33.43
Dec. 13		2.26	33.73
1894.93	2	2.495	33.58
1895.	U. C.		
Jan. 25	W	21.15	36.38
26		20.98	36.13
1895.07	2	21.065	36.26
East	4	20.925	36.41
West	4	21.107	36.31
U. C.			36.36
Flex.			−.13
1894.50	8	5 28 21.016	+85 8 36.23
1895.	L. C.		
July 22	W	21.32	36.23
23		20.93	36.55
24		21.18	35.15
25		20.81	35.00
1895.46	4	21.060	35.73
1896.	L. C.		
June 8	E	39.61	38.80
10		39.31	38.59
11		39.47	38.46
12		39.60	39.38
1896.44	4	39.497	38.81
West	4	21.060	35.73
East	4	20.838	36.06
L. C.			35.89
Flex.			+.14
1895.95	8	5 28 20.949	+85 8 36.03
U. C.	8	21.016	36.23
L. C.	8	20.949	36.03
1895.23	16	5 28 20.982	+85 8 36.13
P. M.		−.007	.00
Obs. − A. E.		−.722	−0.62
Sec. δ 11.8			

No. 27. ζ ORIONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	1.9	5 35 27.70	−1 59 54.9

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Feb. 1	E	24.633	57.16
2		.579	56.51
13		.617	56.59
14		.630	56.96
1894.11	4	24.615	56.80
1894. Dec. 13	W	24.570	56.09
1895. Jan. 25	W	27.635	54.57
26		.619	54.73
28		.641	54.42
1895.07	3	27.632	54.57
East	4	27.641	54.66
West	4	.623	54.42
			−54.54
Flex.			+.01
1894.59	8	5 35 27.632	−1 59 54.53
P. M.		+.001	−.02
Obs. − C. T.		−.07	+0.4

"Mean; dup." Struve 774 = 2″.5

No. 28. α COLOMBAE.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	2.7	5 35 50.876	−34 7 49.30
C. T.		50.95	48.7
N. A.		50.865	48.67

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Dec. 9	E	46.408	54.06
1894. Jan. 10	E	48.601	52.54
11		.636	51.60
12		.634	52.08
1894.03	3	48.624	52.07
1894. Nov. 8	W	48.615	51.40
14		.594	50.96
16		.690	51.03
19		.613	50.79
1894.87	4	48.628	51.04
East	4	50.783	49.92
West	4	.799	48.93
			−49.42
Flex.			+.04
1894.44	8	5 35 50.791	−34 7 49.38
P. M.	mean	+.002	−.02
Obs. − A. E.		−.083	−0.10
Obs. − C. T.		−.16	−0.7
Obs. − N. A.		−.072	−0.73

No. 204. β COLOMBAE.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
N. A. '97	2.9	5 47 15.459	−35 48 29.01

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 23	W	13.428	31.10
Dec. 13		.454	32.31
1894.93	2	13.441	31.70
1895. Jan. 25	W	15.451	28.83
26		.546	29.12
1895.07	2	15.499	28.97
1895. Nov. 7	E	15.401	28.96
13		.523	27.34
19		.491	28.65
Dec. 9		.481	30.63
1895.89	4	15.474	28.90
West	4	15.525	29.78
East	4	.474	28.90
			−29.34
Flex.			+.04
1895.44	8	5 47 15.500	−35 48 29.30
P. M.		−.001	−.18
Obs. − N. A. '97		+.040	−0.47

No. 138. γ COLOMBAE.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	4.5	5 53 48.88	−35 17 41.0

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 23	W	46.735	42.37
Dec. 13		.812	42.90
1894.93	2	46.773	42.64
1895. Jan. 25	W	48.845	41.96
26		.861	41.40
1895.07	2	48.853	41.68
1895. Nov. 7	E	48.843	43.02
13		.883	39.45
19		.841	41.00
Dec. 9		.756	42.76
1895.89	4	48.831	41.56
West	4	48.876	41.89
East	4	.831	41.56
			−41.72
Flex.			+.04
1895.44	8	5 53 48.853	−35 17 41.68
P. M.		.000	.00
Obs. − C. T.		−.03	−0.7

No. 166. ζ CANIS MAJORIS.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
N. A.	2.3	6 16 16.841	−30 1 1.34

Date. 1895.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Jan. 28	W	16.981	1.89
29		.951	0.91
30		.955	1.69
31		.934	1.54
1895.08	4	16.955	1.51
1895.			
Nov. 7	E	16.908	1.88
13		.961	0.08
19		.951	1.29
Dec. 9		.838	1.81
1895.89	4	16.915	1.27
West	4	16.955	1.51
East	4	.915	1.27
			−1.39
Flex.			+.03
1895.48	8	6 16 16.935	−30 1 1.36
P. M.		+.001	.00
Obs. − N. A.		+.095	−0.02

No. 30. ν GEMINORUM.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
A. E.	4.2	6 22 43.705	+20 16 41.67

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Feb. 1	E	40.129	44.28
2		.128	44.22
13		.094	43.44
14		.143	44.26
1894.11	4	40.123	44.05
1895.			
Jan. 28	W	43.698	42.20
29		.671	42.02
30		.699	41.58
31		.629	41.52
1895.08	4	43.674	41.83
East	4	43.687	42.07
West	4	.674	41.83
			41.95
Flex.			−.03
1894.60	8	6 22 43.680	+20 16 41.92
P. M.		.000	−.01
Obs. − A. E.		−.025	+0.24

No. 31. PIAZZI 305.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
C. T.	6.0	6 56 50.10	+29 30 49.9

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Feb. 1	E	46.104	52.20
2		.154	52.22
13		.124	52.20
14		.196	51.93
1894.11	4	46.144	52.14
1895.			
Jan. 28	W	50.054	46.91
29		.042	46.14
30		.065	46.09
31		.065	46.20
1895.08	4	50.056	46.34
East	4	49.950	47.22
West	4	50.056	46.33
			46.78
Flex.			−.04
1894.60	8	6 56 50.003	+29 30 46.74
P. M.		+.006	−.43
Obs. − C. T.		−.09	−3.6

No. 206. 22 CANIS MAJORIS.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
N. A. '97	3.5	6 57 32.112	−27 47 4.02

Date. 1895.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Feb. 1	W	32.187	4.87
2		.196	4.84
4		.194	4.77
18		.159	4.75
1895.10	4	32.184	4.81
1895.			
Nov. 7	E	32.227	5.15
13		.151	4.30
19		.207	4.81
Dec. 9		.108	5.68
1895.89	4	32.173	4.99
West	4	32.184	4.81
East	4	.173	4.99
			−4.90
Flex.			+.03
1895.50	8	6 57 32.178	−27 47 4.87
P. M.		+.001	+.01
Obs. − N. A. '97		+.067	−0.84

No. 207. o 2 CANIS MAJORIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
N. A. '97	3.0	6 58 38.384	−23 40 48.72

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 23	W	35.887	44.08
Dec. 13		.885	43.95
1894.93	2	35.886	44.01
1895.			
Jan. 25	W	38.332	49.57
26		.413	49.06
1895.07	2	38.372	49.32
1896.			
Jan. 2	E	40.867	53.83
6		.813	53.18
Feb. 7		.806	52.60
12		.893	53.41
1896.06	4	40.845	53.26
West	4	38.382	49.20
East	4	.340	48.18
			−48.69
Flex.			+.03
1895.53	8	6 58 38.361	−23 40 48.66
P. M.		+.001	−.01
Obs. − N. A. '97		−.023	+0.05

No. 32. 25 CAMELOPARDALIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.3	7 8 59.373	+82 36 46.78

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″
Feb. 1	E	45.74	52.50
2		.82	52.20
13		.65	52.40
14		.51	51.91
1894.11	4	45.680	52.25
1895.	U. C.		
Feb. 1	W	58.54	46.51
2		.45	46.90
4		.49	45.86
5		.66	45.99
1895.09	4	58.535	46.32
East	4	58.602	46.32
West	4	.535	46.32
U. C.			46.32
Flex.			−.13
1894.60	8	7 8 58.568	+82 36 46.19
1895.	L. C.		
July 15	W	58.78	[48.62]
16		.59	46.30
17		.49	45.63
19		.20	45.30
1895.54	4, 3	58.515	45.74
1896.	L. C.		
June 16	E	9 11.58	39.81
17		.40	39.41
19		.53	39.63
22		.38	39.85
1896.46	4	11.472	39.67
West	4, 3	58.515	45.74
East	4	.555	45.62
L. C.			45.68
Flex.			+.14
1896.00	8, 7	7 8 58.535	+82 36 45.82
U. C.	8	58.568	46.19
L. C.	8, 7	.535	45.82
1895.30	16, 15	7 8 58.552	+82 36 46.00
P. M.		−.004	+.01
Obs. − A. E.		−.825	−0.77
Sec. δ 7.8			

No. 141. π PUPPIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	2.7	7 13 26.09	−36 54 32.5

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Jan. 28	W	26.141	35.08
29		.043	33.45
30		.127	34.76
31		.079	34.48
1895.08	4	26.097	34.44
1896.			
Jan. 2	E	28.146	40.38
6		.112	39.81
Feb. 7		.192	39.80
12		.118	[37.50]
1896.06	4, 3	28.142	40.00
West	4	26.097	34.44
East	4, 3	.022	33.68
			−34.06
Flex.			+.04
1895.57	8, 7	7 13 26.060	−36 54 34.02
P. M.		+.001	−.01
Obs. − C. T.		−.03	−1.5
Obs. − N. A. '97		+.006	−1.77

No. 208. η CANIS MAJORIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
N. A. '97	2.4	7 19 56.562	−29 5 54.00

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Jan. 28	W	56.492	54.45
29		.448	54.93
30		.526	55.00
31		.522	55.87
1895.08	4	56.497	55.06
1896.			
Jan. 2	E	58.839	6 1.15
6		.864	2.13
Feb. 7		.746	1.84
12		.824	0.66
1896.06	4	58.818	1.44
West	4	56.497	5 55.06
East	4	.445	54.59
			−54.82
Flex.			+.03
1895.57	8	7 19 56.471	−29 5 54.79
P. M.		+.001	−.01
Obs. − N. A. '97		−.090	−0.80

No. 33. ξ NAVIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	3.5	7 44 52.83	−24 35 47.3
N. A.		52.699	47.51

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Feb. 26	E	50.168	39.17
27		.155	39.31
28		.208	39.34
Mar. 12		.167	39.12
1894.17	4	50.174	39.24
1895.			
Jan. 28	W	52.704	48.52
29		.694	47.52
30		.682	48.18
31		.661	47.89
1895.08	4	52.685	48.03
East	4	52.698	48.10
West	4	.685	48.03
			−48.06
Flex.			+.03
1894.62	8	7 44 52.691	−24 35 48.03
P. M.		−.001	+.01
Obs. − C. T.		−.14	−0.7
Obs. − N. A.		−.009	−0.51

No. 34. 9 NAVIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	5.5	7 46 54.54	−13 37 10.3
303		54.563	10.29

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Feb. 1	E	51.805	1.25
2		.776	1.77
13		.717	1.96
14		.719	1.98
1894.11	4	51.754	1.74
1895.			
Feb. 1	W	54.602	11.28
2		.581	10.99
4		.584	10.66
5		.591	11.34
1895.09	4	54.589	11.07
East	4	54.537	10.76
West	4	.589	11.07
			−10.91
Flex.			+.02
1894.60	8	7 46 54.563	−13 37 10.89
P. M.		−.002	−.13
Obs. − C. T.		+.02	−0.7
Obs. − 303		−.002	−0.73

No. 35. φ GEMINORUM.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.0	7 47 4.321	+27 2 14.57

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Mar. 14	E	0.641	23.92
15		.620	23.78
21		.694	23.79
22		.615	23.26
23		——	23.26
1894.21	4, 5	0.642	23.60
1895.			
Feb. 18	W	4.227	14.44
20		.223	13.94
27		.318	14.16
28		.186	14.77
1895.15	4	4.238	14.33
East	4, 5	4.324	14.57
West	4	.238	14.33
			14.45
Flex.			−.04
1894.68	8, 9	7 47 4.281	+27 2 14.41
P. M.		−.001	−.01
Obs. − A. E.		−.041	−0.17

No. 36. B. A. C. 2320.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	7.1	7 52 26.53	+88 56 47.4

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″
Feb. 26	E	51 23.32	56.98
27		23.77	57.32
28		23.06	57.10
Mar. 12		24.88	56.33
1894.17	4	23.757	56.93
1895.	U. C.		
Jan. 28	W	52 31.31	47.16
29		31.00	46.75
30		30.32	47.95
31		29.49	47.54
1895.08	4	30.530	47.35
East	4	31.098	47.53
West	4	30.530	47.35
U. C.			47.44
Flex.			−.14
1894.61	8	7 52 30.814	+88 56 47.30
1895.	L. C.		
July 30	W	52 31.73	47.41
31		28.67	47.12
Aug. 5		31.76	47.27
8		30.36	47.26
1895.59	4	30.630	47.26
1896.	L. C.		
June 16	E	53 37.79	38.15
17		37.15	37.87
19		36.46	38.02
22		37.72	38.35
1896.46	4	37.280	38.10
West	4	52 30.630	47.26
East	4	30.265	47.59
L. C.			47.42
Flex.			+.14
1896.02	8	7 52 30.448	+88 56 47.56
U. C.	8	30.814	47.30
L. C.	8	.448	47.56
1895.31	16	7 52 30.631	+88 56 47.43
P. M.		+.104	.00
Obs. − C. T.		+4.20	+0.03
Sec. δ 56.			

No. 37. ω 1 CANCRI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	6.0	7 54 34.736	+25 40 48.43

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Mar. 14	E	31.035	58.41
15		.074	57.82
21		.129	57.86
22		.049	57.62
1894.21	4	31.072	57.93
1895.			
Feb. 1	W	34.677	47.89
2		.674	48.14
4		.693	47.96
5		.679	47.60
1895.09	4	34.681	47.90
East	4	34.709	48.32
West	4	.681	47.90
			48.11
Flex.			−.04
1894.65	8	7 54 34.695	+25 40 48.07
P. M.		.000	.00
Obs. − A. E.		−.041	−0.36

No. 38. 3 URSAE MAJORIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	5.5	8 2 22.059	+68 46 57.65

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Feb. 26	E	15.660	47 8.26
27		.609	8.34
28		.573	8.19
Mar. 12		.650	7.33
1894.17	4	15.623	8.03
1895.			
Feb. 18	W	21.676	46 58.94
20		.688	58.38
27		.754	57.93
28		.636	58.59
1895.15	4	21.688	58.46
East	4	21.660	57.83
West	4	.688	58.46
			58.15
Flex.			−.11
1894.66	8	8 2 21.674	+68 46 58.04
P. M.		+.002	.00
Obs. − A. E.		−.383	+0.39
Sec. δ 2.8			

No. 167. ζ ARGUS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
N. A.	2.5	7 59 53.667	−39 42 26.11

Date. 1895.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Feb. 1	W	53.602	28.08
2		.696	29.71
4		.589	28.40
5		.614	28.29
6		.585	29.64
1895.10	5	53.617	28.82
1896.			
Jan. 2	E	55.684	38.51
6		.621	37.45
Feb. 7		.700	37.79
12		.736	36.51
1896.06	4	55.685	37.56
West	5	53.617	28.82
East	4	.574	27.54
			−28.18
Flex.			+.04
1895.58	9	7 59 53.596	−39 42 28.14
P. M.		+.002	−.02
Obs. − N. A.		−.069	−2.05

No. 39. ζ CANCRI PR.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	4.8	8 6 11.428	+17 57 49.06

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Mar. 14	E	7.941	58 1.41
15		8.008	1.76
21		.039	2.00
22		.978	1.37
23		.892	0.96
1894.22	5	7.972	1.50
1895.			
Feb. 1	W	11.369	57 50.69
2		.409	50.59
4		.444	50.40
5		.396	50.42
1895.10	4	11.404	50.53
East	5	11.414	51.01
West	4	.404	50.53
			50.77
Flex.			−.02
1894.66	9	8 6 11.409	+17 57 50.75
P. M.		+.001	−.05
Obs. − A. E.		−.018	+1.64

No. 41. δ HYDRAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	4.2	8 32 5.79	+6 4 10.5

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Feb. 26	E	2.675	23.62
27		.584	23.01
28		.675	22.73
Mar. 12		.690	23.19
1894.17	4	2.656	23.14
1895.			
Jan. 28	W	5.813	11.19
29		.853	10.99
31		.945	11.65
Feb. 6		.794	10.71
1895.09	4	5.851	11.13
East	4	5.841	10.79
West	4	.851	11.13
			10.96
Flex.			−.01
1894.63	8	8 32 5.846	+6 4 10.95
P. M.		−.002	.00
Obs. − C. T.		+.05	+0.4

No. 42. σ HYDRAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.5	8 33 16.316	+3 42 35.38

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Mar. 14	E	13.041	48.18
21		.141	48.17
22		.034	47.68
23		.001	47.50
1894.22	4	13.054	47.88
1895.			
Feb. 18	W	16.190	35.26
20		.154	35.65
27		.223	35.68
28		.145	35.94
1895.15	4	16.178	35.63
East	4	16.194	35.45
West	4	.178	35.63
			35.54
Flex.			.00
1894.68	8	8 33 16.186	+3 42 35.54
P. M.		+.002	−.01
Obs. − A. E.		−.128	+0.15

No. 43. γ CANCRI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.9	8 37 12.632	+21 50 45.06
N. A.		12.607	45.08

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Feb. 26	E	9.108	58.31
27		.151	57.93
28		.075	57.72
Mar. 12		.123	57.75
1894.17	4	9.114	57.93
1895.			
Feb. 1	W	12.615	45.13
2		.618	45.29
4		.621	45.15
5		.607	45.17
1895.09	4	12.615	45.19
East	4	12.601	45.23
West	4	.615	45.19
			45.21
Flex.			−.03
1894.63	8	8 37 12.607	+21 50 45.18
P. M.		−.003	−.01
Obs. − A. E.		−.028	+0.11
Obs. − N. A.		−.003	+0.09

No. 44. α PYXIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	3.8	8 39 22.53	−32 48 31.2

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Mar. 14	E	20.127	17.35
21		19.991	16.16
22		.015	17.06
23		.033	17.30
1894.22	4	20.042	16.97
1895.			
Feb. 18	W	22.451	30.65
20		.380	28.97
27		.361	30.84
28		.434	29.61
1895.15	4	22.406	30.02
East	4	22.453	29.82
West	4	.406	30.02
			−29.92
Flex.			+.04
1894.68	8	8 39 22.429	−32 48 29.88
P. M.		.000	.00
Obs. − C. T.		−.10	+1.3

No. 45. B. A. C. 3097.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
C. T.	4.7	8 59 51.25	+38 52 16.9

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Mar. 14	E	47.184	32.88
21		.247	32.85
22		.268	32.78
23		.264	32.07
1894.22	4	47.241	32.64
1895.			
Feb. 1	W	51.029	17.89
2		.047	17.75
4		.106	17.67
5		.056	17.49
1895.10	4	51.059	17.70
East	4	51.076	18.47
West	4	.059	17.70
			18.08
Flex.			−.06
1894.66	8	8 59 51.067	+38 52 18.02
P. M.		+.002	−.02
Obs. − C. T.		−.18	+1.1

No. 46. κ CANCRI.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
A. E.	5.1	9 2 3.668	+11 5 26.37
C. T.		3.68	26.6
N. A.		3.586	25.90

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Feb. 26	E	0.352	40.23
27		.338	39.93
28		.360	39.91
Mar. 12		.303	39.89
1894.17	4	0.338	39.99
1895.			
Feb. 18	W	3.599	26.37
20		.567	26.00
27		.590	26.14
28		.627	26.90
1895.15	4	3.596	26.35
East	4	3.594	25.68
West	4	.596	26.35
			26.01
Flex.			−.01
1894.66	8	9 2 3.595	+11 5 26.00
P. M.		.000	.00
Obs. − A. E.		−.073	−0.37
Obs. − C. T.		−.08	−0.6
Obs. − N. A.		+.009	+0.10

No. 143. ψ ARGUS.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
C. T.	3.7	9 26 33.94	−40 0 26.2

Date. 1895.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Feb. 18	W	33.977	27.03
20		.894	26.27
27		.805	27.55
Mar. 4		.875	26.37
1895.15	4	33.888	26.80
1896.			
Jan. 2	E	36.149	43.16
6		.272	41.57
Feb. 7		.212	43.23
12		.175	41.10
1896.06	4	36.202	42.26
West	4	33.888	26.80
East	4	.826	26.54
			−26.67
Flex.			+.04
1895.60	8	9 26 33.857	−40 0 26.63
P. M.		+.010	−.04
Obs. − C. T.		−.07	−0.5

No. 47. υ 2 HYDRAE.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
C. T.	4.7	10 0 0.77	−12 33 17.8
303		0.681	19.69

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Apr. 2	E	9 59 57.829	3.74
3		.791	3.26
4		.773	3.53
5		.814	3.60
1894.26	4	57.802	3.53
1895.			
Feb. 18	W	10 0 0.635	20.50
20		.657	20.32
27		.653	20.27
28		.681	20.55
1895.15	4	0.656	20.41
East	4	0.726	20.90
West	4	.656	20.41
			−20.66
Flex.			+.02
1894.70	8	10 0 0.691	−12 33 20.64
P. M.		−.001	+.01
Obs. − C. T.		−.08	−2.8
Obs. − 303		+.009	−0.94

No. 48. 32 URSAE MAJORIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.7	10 10 24.533	+65 37 54.61

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 2	E	20.160	38 13.03
3		.078	13.10
4		19.930	13.09
5		.026	13.28
1894.26	4	20.049	13.12
1895.			
Mar. 4	W	24.561	37 54.48
Apr. 2		.475	54.62
5		.520	55.26
8		.509	54.47
1895.24	4	24.516	54.71
East	4	24.480	55.31
West	4	.516	54.71
			55.01
Flex.			−.10
1894.75	8	10 10 24.498	+65 37 54.91
P. M.		−.004	.00
Obs. − A. E.		−.039	+0.30

No. 49. γ 1 LEONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	2.5	10 14 11.042	+20 22 21.30
C. T.		10.97	21.2
N. A.		11.019	20.77

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Mar. 14	E	7.750	39.40
21		.690	39.98
22		.733	39.87
23		.688	39.51
1894.22	4	7.715	39.69
1895.			
Feb. 20	W	11.038	21.57
Apr. 11		.056	21.26
15		.061	21.04
17		.020	21.27
1895.25	4	11.044	21.28
East	4	11.009	21.74
West	4	.044	21.28
			21.51
Flex.			−.03
1894.73	8	10 14 11.026	+20 22 21.48
P. M.		+.005	−.04
Obs. − A. E.		−.011	+0.14
Obs. − C. T.		+.06	+0.2
Obs. − N. A.		+.012	+0.67

No. 145. B. A. C. 3495.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	5.0	10 14 21.40	+84 47 5.1

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
	U. C.		
Feb. 18	W	21.06	7.78
27		21.41	7.15
28		21.76	8.20
Apr. 10		22.04	7.52
1895.18	4	21.567	7.66
1896.	U. C.		
Jan. 2	E	31.25	46 48.98
6		30.71	49.08
Feb. 7		31.20	49.28
12		31.73	50.22
1896.06	4	31.222	49.39
West	4	21.567	47 7.66
East	4	.642	7.35
U. C.			7.50
Flex.			−.13
1895.62	8	10 14 21.604	+84 47 7.37
1894.	L. C.		
Oct. 3	W	12.04	24.93
4		12.37	24.67
5		12.15	24.42
9		12.14	24.50
1894.76	4	12.175	24.63
1895.	L. C.		
Sept. 4	E	21.50	6.89
6		21.72	7.00
19		21.65	6.82
23		21.40	7.78
1895.70	4	21.567	7.12
West	4	21.771	6.68
East	4	.567	7.12
L. C.			6.90
Flex.			+.14
1895.23	8	10 14 21.669	+84 47 7.04
U. C.	8	21.604	7.37
L. C.	8	.669	7.04
1895.42	16	10 14 21.636	+84 47 7.20
P. M.		+.043	−.02
Obs. − C. T.		+.28	+2.1
Sec. δ 11.0			

No. 50. 37 SEXTANTIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	6.4	10 40 37.66	+6 55 35.0

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Apr. 2	E	34.531	54.71
3		.542	54.22
4		.577	54.82
5		.563	54.48
1894.26	4	34.553	54.56
1895.			
Mar. 4	W	37.665	35.64
Apr. 2		.642	35.68
5		.677	35.38
8		.669	36.36
1895.24	4	37.663	35.76
East	4	37.681	35.70
West	4	.663	35.76
			35.73
Flex.			−.01
1894.75	8	10 40 37.672	+6 55 35.72
P. M.		.000	−.01
Obs. − C. T.		+.01	+0.7

No. 147. α CRATERIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	4.4	10 54 39.49	−17 44 22.3

Date. 1895.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Mar. 4	W	39.479	24.24
Apr. 2		.527	22.74
5		.479	23.20
8		.531	22.72
1895.24	4	39.504	23.23
1896.			
Mar. 10	E	42.313	43.00
12		.386	42.79
Apr. 2		.385	42.11
May 7		.382	41.84
1896.25	4	42.366	42.43
West	4	39.504	23.23
East	4	.414	23.19
			−23.21
Flex.			+.03
1895.74	8	10 54 39.459	−17 44 23.18
P. M.		+.025	−.11
Obs. − C. T.		−.01	−1.0

No. 51. d LEONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
N. A.	5.0	10 55 8.236	+4 10 52.11

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Apr. 2	E	5.198	11 11.76
3		.169	11.46
4		.186	11.61
5		.165	11.90
1894.26	4	5.179	11.68
1895.			
Apr. 10	W	8.222	10 52.44
11		.241	52.60
15		.301	52.47
17		.295	52.01
1895.28	4	8.265	52.38
East	4	8.279	52.42
West	4	.265	52.38
			52.40
Flex.			.00
1894.77	8	10 55 8.272	+4 10 52.40
P. M.		.000	.00
Obs. − N. A.		+.036	+0.29

No. 52. p 3 LEONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	6.2	11 1 32.759	+2 31 31.58

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Apr. 2	E	29.862	50.68
3		.838	50.81
4		.813	51.18
5		.852	50.81
1894.26	4	29.841	50.87
1895.			
Apr. 10	W	32.860	31.40
11		.878	31.84
15		.928	31.48
17		.865	31.59
1895.28	4	32.883	31.58
East	4	32.928	31.47
West	4	.883	31.58
			31.52
Flex.			.00
1894.77	8	11 1 32.906	+2 31 31.52
P. M.		−.007	−.02
Obs. − A. E.		+.140	−0.08

No. 53. 83 LEONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	6.2	11 21 26.35	+3 35 6.4

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 9	E	23.382	26.57
16		.363	26.70
17		.414	27.00
18		.402	26.41
1894.29	4	23.390	26.67
1895.			
Mar. 4	W	26.455	7.11
Apr. 2		.459	6.85
5		.415	7.05
8		.427	7.45
1895.24	4	26.439	7.12
East	4	26.477	6.90
West	4	.439	7.12
			7.01
Flex.			.00
1894.76	8	11 21 26.458	+3 35 7.01
P. M.		−.012	+.04
Obs. − C. T.		+.10	+0.6

N. prec. star.

No. 54. τ LEONIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	5.1	11 22 32.244	+3 26 3.95
N. A.		32.221	3.90

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 2	E	29.120	23.30
3		.203	24.26
4		.172	24.16
5		.176	23.81
1894.26	4	29.168	23.88
1895.			
Apr. 10	W	32.231	4.25
11		.275	4.51
15		.251	4.20
17		.203	4.21
1895.28	4	32.240	4.29
East	4	32.254	4.10
West	4	.240	4.29
			4.19
Flex.			.00
1894.77	8	11 22 32.247	+3 26 4.19
P. M.		.000	.00
Obs. − A. E.		+.003	+0.24
Obs. − N. A.		+.026	+0.29

No. 148. ζ CRATERIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	5.2	11 39 26.39	−17 46 0.8
303		26.395	0.67

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 10	W	26.472	2.31
11		.480	1.62
15		.505	1.40
17		.413	1.54
1895.28	4	26.467	1.77
1896.			
Mar. 10	E	29.406	21.91
12		.410	22.11
Apr. 2		.518	21.38
May 7		.490	21.21
11		.440	21.38
1896.27	5	29.453	21.60
West	4	26.467	1.77
East	5	.419	1.63
			1.70
Flex.			+.03
1895.78	9	11 39 26.443	−17 46 1.67
P. M.		−.001	+.01
Obs. − C. T.		+.05	−0.9
Obs. − 303		+.047	−0.99

April 2, 1896, "8 mag. in clouds."

No. 55. GROOMBRIDGE 1830.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	6.4	11 46 55.66	+38 28 21.2

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 9	E	52.250	44.59
16		.222	43.43
17		.266	43.90
18		.272	43.20
23		.274	44.10
1894.29	5	52.257	43.84
1895.			
Apr. 10	W	55.725	16.87
11		.743	17.12
15		.753	16.82
17		.689	16.86
1895.28		55.728	16.92
East	5	55.390	23.82
West	4	.728	16.92
			20.37
Flex.			−.06
1894.79	9	11 46 55.559	+38 28 20.31
P. M.		+.072	−1.20
Obs. − C. T.		−.03	−2.1

No. 56. π VIRGINIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.6	11 55 29.504	+7 11 58.65
C. T.		29.48	58.8
N. A.		29.487	59.37

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 9	E	26.455	12 19.52
16		.420	18.96
18		.481	19.24
23		.397	20.17
1894.29	4	26.438	19.47
1895.			
Apr. 10	W	29.522	11 59.00
11		.517	59.52
15		.580	59.47
17		.547	59.47
1895.28	4	29.542	59.36
East	4	29.514	59.42
West	4	.542	59.36
			59.39
Flex.			−.01
1894.79	8	11 55 29.528	+7 11 59.38
P. M.		.000	−.01
Obs. − A. E.		+.024	+0.72
Obs. − C. T.		+.05	+0.6
Obs. − N. A.		+.041	0.00

No. 57. 6 URSAE MINORIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	6.2	12 14 21.315	+88 16 55.71
C. T.		19.97	55.1

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 9	E	21.23	17 15.43
16		20.75	15.21
17		21.38	15.40
23		22.23	15.22
1894.29	4	21.397	15.31
1895.	U. C.		
Apr. 10	W	20.95	16 55.54
11		22.21	54.98
15		22.33	54.96
17		21.76	55.56
1895.28	4	21.812	55.26
East	4	21.674	55.30
West	4	.812	55.26
U. C.			55.28
Flex.			−.14
1894.79	8	12 14 21.743	+88 16 55.14
1894.	L. C.		
Oct. 3	W	21.80	17 14.57
4		23.77	16.39
5		21.58	13.73
9		21.83	14.31
1894.76	4	22.245	14.75
1895.	L. C.		
Oct. 1	E	22.17	16 55.28
7		22.00	55.42
9		19.68	54.99
24		23.78	55.74
1895.78	4	21.907	55.36
West	4	22.522	54.74
East	4	21.907	55.36
L. C.			55.05
Flex.			+.14
1895.27	8	12 14 22.214	+88 16 55.19
U. C.	8	21.743	55.14
L. C.	8	22.214	55.19
1895.03	16	12 14 21.978	+88 16 55.16
P. M.		+.002	.00
Obs. − A. E.		+ .665	−0.55
Obs. − C. T.		+2.01	+0.1
Sec. δ 33.3			

No. 58. 23 COMAE BER.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	4.9	12 29 37.65	+23 12 26.5

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 3	E	34.197	47.18
4		.127	46.47
5		.092	47.56
6		.114	46.96
1894.26	4	34.132	47.04
1895.			
Mar. 4	W	37.147	26.88
Apr. 2		.087	26.92
5		.125	27.02
8		.155	26.47
1895.24	4	37.129	26.82
East	4	37.131	27.16
West	4	.129	26.82
			26.99
Flex.			−.03
1894.75	8	12 29 37.130	+23 12 26.96
P. M.		+.003	.00
Obs. − C. T.		−.52	+0.5

No. 59. f VIRGINIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	5.9	12 31 22.86	−5 15 13.3

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 9	E	19.787	14 51.35
16		.734	51.78
17		.780	51.15
18		.704	51.48
1894.29	4	19.751	51.44
1895.			
Apr. 10	W	22.818	15 11.29
11		.829	12.14
15		.891	11.28
17		.831	11.71
1895.28	4	22.842	11.60
East	4	22.840	11.30
West	4	.842	11.60
			−11.45
Flex.			+.01
1894.79	8	12 31 22.841	−5 15 11.44
P. M.		.000	−.02
Obs. − C. T.		−.02	+1.8

No. 60. 31 COMAE BER.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	5.1	12 46 35.175	+28 6 42.98

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 3	E	32.082	7 3.85
4		.089	3.70
5		.100	4.26
6		.096	3.90
1894.26	4	32.092	3.93
1895.			
Mar. 4	W	34.957	6 43.15
Apr. 2		35.025	43.99
5		.010	43.84
8		.021	43.74
1895.24	4	35.003	43.68
East	4	35.020	44.29
West	4	.003	43.68
			43.98
Flex.			−.04
1894.75	8	12 46 35.012	+28 6 43.94
P. M.		.000	.00
Obs. − A. E.		−.163	+0.96

No. 149. η CENTAURI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	4.4	12 47 37.16	−39 36 28.3

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 10	W	37.246	30.49
11		.215	28.40
15		.260	28.13
17		.236	29.15
1895.28	4	37.239	29.04
1896.			
Mar. 10	E	40.538	49.64
12		.518	49.03
May 7		.514	48.97
11		.502	49.50
1896.28	4	40.518	49.28
West	4	37.239	29.04
East	4	.217	29.66
			−29.35
Flex.			+.04
1895.78	8	12 47 37.228	−39 36 29.31
P. M.		−.002	+.03
Obs. − C. T.		+.07	−1.0

No. 61. 32 H. CAM. SEQ.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.2	12 48 21.455	+83 59 0.79

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 9	E	20.52	22.27
16		.36	20.67
17		.36	21.60
18		.39	20.75
1894.29	4	20.407	21.32
1895.	U. C.		
Apr. 18	W	21.04	1.02
22		.03	0.96
May 7		20.99	2.28
8		.08	2.02
1895.33	4	21.035	1.57
East	4	20.822	1.71
West	4	21.035	1.57
U. C.			1.64
Flex.			−.13
1894.81	8	12 48 20.928	+83 59 1.51
1894.	L. C.		
Oct. 3	W	20.62	20.04
4		.57	21.06
5		.65	20.86
9		.62	20.82
1894.76	4	20.615	20.69
1895.	L. C.		
Oct. 1	E	20.90	1.54
7		.97	1.46
9		.82	1.90
24		.93	1.73
1895.78	4	20.905	1.66
West	4	21.030	1.08
East	4	20.905	1.66
L. C.			1.37
Flex.			+.14
1895.27	8	12 48 20.968	+83 59 1.51
U. C.	8	20.928	1.51
L. C.	8	.968	1.51
1895.04	16	12 48 20.948	+83 59 1.51
P. M.		.000	.00
Obs. − A. E.		−.507	+0.72
Sec. δ 9.5			

No. 62. 61 VIRGINIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	4.9	13 12 54.75	−17 43 37.1

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 9	E	51.590	18.51
16		.581	19.03
17		.504	18.07
18		.529	18.98
1894.29	4	51.551	18.65
1895.			
Apr. 10	W	54.610	39.01
11		.665	38.62
15		.682	37.80
17		.666	38.82
1894.28	4	54.656	38.56
East	4	54.757	37.69
West	4	.656	38.56
			−38.12
Flex.			+.02
1894.79	8	13 12 54.706	−17 43 38.10
P. M.		−.015	−.22
Obs. − C. T.		−.06	−1.2

No. 211. ι CENTAURI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
N. A. '97	3.0	13 14 41.609	−36 9 29.40

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 18	W	41.592	31.69
22		.621	31.21
May 7		.639	31.55
8		.584	31.76
9		.621	32.26
1895.33	5	41.611	31.69
1896.			
Mar. 10	E	44.940	50.53
12		45.012	50.17
May 7		.920	49.33
11		.936	50.65
1896.27	4	44.952	50.17
West	5	41.611	31.69
East	4	.567	31.17
			−31.43
Flex.			+.04
1895.80	9	13 14 41.589	−36 9 31.39
P. M.		+.022	+.05
Obs. − N. A. '97		+.002	−1.94

No. 63. 25 CANUM VEN.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	5.1	13 32 47.94	+36 49 44.1

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 9	E	45.036	50 3.21
16		.094	2.99
17		.040	3.50
18		.013	3.07
1894.29	4	45.046	3.19
1895.			
Apr. 18	W	47.732	49 43.81
22		.737	43.90
May 7		.705	44.69
8		.771	44.70
1895.33	4	47.736	44.28
East	4	47.724	44.76
West	4	.736	44.28
			44.52
Flex.			−.06
1894.81	8	13 32 47.730	+36 49 44.46
P. M.		.000	.00
Obs. − C. T.		−.21	+0.4

No. 64. m VIRGINIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	5.4	13 36 6.035	−8 10 22.98
C. T.		5.97	23.8
303.		6.011	22.66

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 30	E	2.812	5.37
May 2		.869	5.39
7		.854	5.57
22		.894	4.99
1894.35	4	2.857	5.33
1895.			
Apr. 10	W	5.966	23.30
11		.976	23.64
15		6.015	23.49
17		.087	23.42
1895.28	4	6.011	23.46
East	4	6.008	23.64
West	4	.011	23.46
			−23.55
Flex.			+.01
1894.82	8	13 36 6.009	−8 10 23.54
P. M.		−.001	+.01
Obs. − A. E.		−.027	−0.55
Obs. − C. T.		+.04	+0.3
Obs. − 303.		−.003	−0.87

No. 65. π HYDRAE.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	3.6	14 0 23.417	−26 10 32.15

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 30	E	20.077	17.81
May 2		.030	18.02
7		.085	17.77
9		.092	17.27
1894.34	4	20.071	17.72
1895.			
Apr. 18	W	23.443	34.43
May 7		.426	36.07
8		.408	35.81
9		.394	36.33
1895.34	4	23.418	35.66
East	4	23.473	35.07
West	4	.418	35.66
			−35.36
Flex.			+.03
1894.84	8	14 0 23.446	−26 10 35.33
P. M.		.000	.00
Obs. − A. E.		+.029	−3.18
Obs. − N. A. '97		+.030	−0.46

N. A. 1897. proper motion, +s.002 and −0″.17.

No. 66. 9 CENTAURI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	1.9	14 0 30.28	−35 51 15.9
N. A.		30.130	11.02

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
May 22	E	26.586	50 53.77
23		.631	55.16
June 8		.542	55.52
19		.550	54.21
1894.42	4	26.577	54.66
1895.			
May 13	W	30.165	51 12.42
14		.200	12.43
16		.107	12.57
17		.099	12.26
1895.37	4	30.143	12.42
East	4	30.134	51 12.00
West	4	.143	12.42
			−12.21
Flex.			+.04
1894.90	8	14 0 30.139	−35 51 12.17
P. M.		−.004	−.05
Obs. − C. T.		−.14	+3.7
Obs. − N. A.		+.005	−1.20

No. 67. λ VIRGINIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.7	14 13 25.659	−12 53 15.98
C. T.		25.66	15.2

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 30	E	22.400	52 59.23
May 2		.333	59.36
7		.330	58.89
9		.436	59.24
1894.34	4	22.375	59.18
1895.			
May 13	W	25.691	53 16.02
14		.611	15.28
16		.616	16.11
17		.611	15.73
1895.37	4	25.632	15.79
East	4	25.616	15.93
West	4	.632	15.79
			−15.86
Flex.			+.02
1894.86	8	14 13 25.624	−12 53 15.84
P. M.		.000	.00
Obs. − A. E.		−.035	+0.14
Obs. − C. T.		−.04	−0.6

No. 68. f BOÖTIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
N. A.	5.	14 21 34.305	+19 41 56.45

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 30	E	31.531	42 12.45
May 2		.411	12.73
7		.507	12.79
9		.461	13.57
1894.34	4	31.477	12.89
1895.			
Apr. 18	W	34.271	[59.24]
May 7		.290	56.65
8		.317	56.81
9		.260	56.58
1895.34	4, 3	34.284	56.68
East	4	34.272	56.54
West	4, 3	.284	56.68
			56.61
Flex.			−.03
1894.84	8, 7	14 21 34.278	+19 41 56.58
P. M.		−.001	.00
Obs. − N. A.		−.028	+0.13

No. 69. 5 URSAE MINORIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.5	14 27 44.866	+76 9 45.79

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 30	E	44.86	10 2.44
May 2		45.03	2.46
7		44.90	2.52
9		45.08	2.68
1894.34	4	44.967	2.52
1895.	U. C.		
Apr. 18	W	44.59	9 46.50
22		44.69	45.66
May 7		44.71	46.85
8		44.81	46.80
1895.33	4	44.700	46.45
East	4	44.778	9 46.49
West	4	.700	46.45
U. C.			46.47
Flex.			−.12
1894.83	8	14 27 44.739	+76 9 46.35
1894.	L. C.		
Oct. 25	W	44.82	10 1.88
29		44.86	1.18
Nov. 5		45.02	2.40
6		44.93	2.25
1894.84	4	44.907	1.93
1895.	L. C.		
Oct. 1	E	44.69	9 46.07
7		44.78	46.00
9		44.83	46.63
24		44.85	46.42
1895.78	4	44.789	46.28
West	4	44.719	45.90
East	4	.789	46.28
L. C.			46.09
Flex.			+.15
1895.31	8	14 27 44.754	+76 9 46.24
U. C.	8	44.739	46.35
L. C.	8	.754	46.24
1895.04	16	14 27 44.746	+76 9 46.29
P. M.		.000	.00
Obs. − A. E.		−.120	+0.50
Sec. δ 4.2			

No. 70. ε 2 BOÖTIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	2.6	14 40 24.149	+27 31 0.77
C. T.		24.03	1.3
N. A.		24.054	0.88

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 30	E	21.424	16.85
May 2		.383	16.85
7		.410	17.00
9		.369	16.92
1894.34	4	21.396	16.90
1895.			
May 14	W	24.041	0.74
16		23.997	1.32
17		.947	1.22
21		.029	.089
1894.38	4	24.004	1.04
East	4	24.020	1.56
West	4	.004	1.04
			1.30
Flex.			−.04
1894.86	8	14 40 24.012	+27 31 1.26
P. M.		.000	.00
Obs. − A. E.		−.137	+0.49
Obs. − C. T.		−.02	0.0
Obs. − N. A.		−.042	+0.38

No. 71. ξ 2 LIBRAE.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	5.6	14 51 4.15	−10 59 8.8
303.		4.166	8.32

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
May 22	E	0.924	58 54.27
23		.899	54.25
June 8		.916	54.06
19		.915	54.77
1894.42	4	0.914	54.34
1895.			
Apr. 18	W	4.162	59 8.11
22		.163	8.49
May 7		.191	9.24
8		.207	9.18
1895.33	4	4.181	8.76
East	4	4.163	59 9.06
West	4	.181	8.76
			−8.91
Flex.			+ .02
1894.87	8	14 51 4.172	−10 59 8.89
P. M.		.000	.00
Obs. − C. T.		+.02	−0.1
Obs. − 303.		+.006	−0.57

No. 72. PIAZZI 212.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	5.9	14 51 19.79	−20 56 27.8

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Apr. 30	E	16.575	13.96
May 2		.568	14.32
7		.545	14.55
9		.565	14.17
1894.34	4	16.563	14.25
1895.			
May 13	W	20.102	30.97
14		.076	30.15
16		.038	30.61
17		.012	30.50
1895.37	4	20.057	30.56
East	4	19.983	28.95
West	4	20.057	30.56
			−29.76
Flex.			+.03
1894.86	8	14 51 20.020	−20 56 29.73
P. M.		+.010	−.24
Obs. − C. T.		+.24	−2.2

No. 73. GROOMBRIDGE 2283.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
C. T.	7.1	15 11 6.31	+87 38 13.3

Date. 1894.	Obs. U. C.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
May 22	E	24.73	25.73
23		23.97	25.11
June 8		23.56	25.90
19		25.03	25.17
1894.42	4	24.322	25.48
1895.	U. C.		
May 13	W	5.56	11.67
14		2.51	11.22
16		3.80	11.26
17		3.77	11.78
1895.37	4	3.910	11.48
East	4	3.368	12.01
West	4	3.910	11.48
U. C.			11.74
Flex.			−.13
1894.90	8	15 11 3.639	+87 38 11.61
1894.	L. C.		
Oct. 25	W	25.09	24.51
29		24.73	23.77
Nov. 5		25.17	24.56
6		26.07	24.76
1894.84	4	25.265	24.40
1895.	L. C.		
Oct. 1	E	3.37	11.69
7		4.24	11.46
9		3.77	11.84
24		3.85	11.63
1895.78	4	3.807	11.66
West	4	4.311	10.93
East	4	3.807	11.66
L. C.			11.29
Flex.			+.14
1895.31	8	15 11 4.059	+87 38 11.43
U. C.	8	3.639	11.61
L. C.	8	4.059	11.43
1895.10	16	15 11 3.849	+87 38 11.52
P. M.		−.009	−.01
Obs. − C. T.		−2.47	−1.8
Sec. δ 24.4			

No. 74. η CORONAE.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
C. T.	5.0	15 18 51.98	+30 40 1.3

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Apr. 30	E	49.553	14.64
May 2		.462	14.51
7		.446	14.41
9		.511	14.60
1894.34	4	49.493	14.54
1895.			
Apr. 18	W	51.935	1.18
22		52.051	2.36
May 7		.951	1.16
8		.000	1.02
1895.33	4	51.984	1.43
East	4	51.961	1.57
West	4	.984	1.43
			1.50
Flex.			−.05
1894.83	8	15 18 51.972	+30 40 1.45
P. M.		+.002	−.03
Obs. − C. T.		−.01	+0.1

No. 75. ζ 1 LIBRAE.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
C. T.	6.0	15 22 20.06	−16 21 1.0
303.		20.010	0.59

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
May 22	E	16.636	20 48.40
23		.656	48.37
June 8		.617	48.48
19		.574	48.91
1894.42	4	16.621	48.54
1895.			
May 13	W	20.069	21 1.02
14		.086	0.33
16		.069	0.57
17		.033	0.96
1895.37	4	20.064	0.72
East	4	19.996	1.27
West	4	20.064	0.72
			−1.00
Flex.			+.02
1894.90	8	15 22 20.030	−16 21 0.98
P. M.		.000	.00
Obs. − C. T.		−.03	0.0
Obs. − 303.		+.020	−0.39

No. 76. κ LIBRAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	5.1	15 35 53.73	−19 20 17.2

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
May 22	E	50.315	6.05
23		.302	6.41
June 8		.333	6.05
19		.268	6.86
1894.42	4	50.304	6.34
1895.			
May 13	W	53.818	18.53
14		.745	18.00
16		.769	17.75
17		.781	17.93
1895.37	4	53.778	18.05
East	4	53.756	18.13
West	4	.778	18.05
			−18.09
Flex.			+.03
1894.90	8	15 35 53.767	−19 20 18.06
P. M.		.000	−.01
Obs. − C. T.		+.04	−0.9

No. 77. λ LIBRAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	5.1	15 47 14.26	−19 51 9.8

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
May 22	E	10.875	50 59.62
23		.807	60.00
June 8		.821	60.16
19		.773	60.25
1894.42	4	10.819	60.01
1895.			
May 21	W	14.316	51 11.10
22		.276	10.54
23		.237	10.51
29		.257	10.10
1895.40	4	14.271	10.56
East	4	14.295	10.99
West	4	.271	10.56
			−10.77
Flex.			+.03
1894.91	8	15 47 14.283	−19 51 10.74
P. M.		.000	.00
Obs. − C. T.		+.02	−0.9

No. 216. π SCORPII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
N. A. '97	3.1	15 52 29.862	−25 48 41.50

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
May 13	W	29.992	42.36
14		.978	41.99
16		.963	42.31
17		.970	42.34
1895.37	4	29.976	42.25
1896.			
June 8	E	33.572	52.65
10		.556	51.86
11		.508	51.37
12		.550	51.78
1896.45	4	33.546	51.91
West	4	29.976	42.25
East	4	.924	41.33
			−41.79
Flex.			+.03
1895.91	8	15 52 29.950	−25 48 41.76
P. M.		+.003	+.03
Obs. − N. A. '97		+.091	−0.23

No. 78. 49 LIBRAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	5.6	15 54 26.06	−16 13 25.1

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
May 22	E	22.662	15.44
23		.612	15.62
June 8		.586	15.34
19		.601	15.88
1894.42	4	22.615	15.57
1895.			
May 21	W	25.984	26.45
22		.941	26.07
23		.995	25.87
29		.986	25.37
1895.40	4	25.976	25.94
East	4	26.020	26.02
West	4	25.976	25.94
			−25.98
Flex.			+.02
1894.91	8	15 54 25.998	−16 13 25.96
P. M.		−.004	−.03
Obs. − C. T.		−.07	−0.9

No. 79. ν 2 SCORPII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	4.2	16 5 53.55	−19 11 14.8

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
May 22	E	50.061	5.63
23		.035	6.40
June 8		.097	6.29
19		.048	6.37
1894.42	4	50.060	6.17
1895.			
May 13	W	53.535	15.45
14		.523	15.53
16		.512	15.56
17		.544	14.99
1895.37	4	53.529	15.38
East	4	53.541	15.75
West	4	.529	15.38
			−15.56
Flex.			+.03
1894.90	8	16 5 53.535	−19 11 15.53
P. M.		.000	.00
Obs. − C. T.		−.01	−0.7

Following star.

No. 80. GROOMBRIDGE 2320.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.5	16 6 1.888	+68 5 12.65

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
June 20	E	2.023	21.46
21		1.943	21.55
25		.975	21.75
26		.952	21.97
1894.48	4	1.973	21.68
1895.			
May 21	W	2.105	12.48
22		.118	12.52
23		.041	12.37
29		.035	12.71
1895.40	4	2.075	12.52
East	4	2.125	12.11
West	4	.075	12.52
			12.31
Flex.			−.11
1894.94	8	16 6 2.100	+68 5 12.20
P. M.		−.001	.00
Obs. − A. E.		+.211	−0.45
Sec. δ 2.7			

No. 81. σ 1 CORONAE BOR.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	5.3	16 10 44.62	+34 7 28.5
A. E.	(Mean)	(44.717)	(29.90)

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
May 22	E	(N. fol. 42.498)	(39.32
May 23	E	S. prec. 42.272	34.31
June 19		.354	34.92
22		.311	34.52
1894.45	3	42.312	34.58
1895.			
May 13	W	S. prec. 44.560	25.14
14		.564	24.86
16		.599	25.32
17		.545	25.22
1895.37	4	44.567	25.14
East	3	44.579	25.38
West	4	.567	25.14
			25.26
Flex.			−.05
1894.91	7	16 10 44.573	+34 7 25.21
P. M.		−.002	.00
Obs. − C. T.		(−.05)	(−3.3)
		* Δ α 0ˢ.185	Δ δ 3″.80
Obs. − A. E. (Mean)		(−.05)	(−2″.79)

"Preceding star is fainter."
N. fol. star: Obs. − C. T., +ˢ.14 and +0″.5

*Measured with the 12-inch telescope: 1897.34 p=211°.2 s=4″.44. The position angle has passed through 180° since 1850.

No. 82. σ SCORPII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	3.3	16 14 48.32	−25 20 24.7

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
June 20	E	44.649	17.31
21		.678	17.17
25		.670	17.29
26		.726	16.80
1894.48	4	44.681	17.14
1895.			
May 21	W	48.365	27.24
22		.360	26.79
23		.326	26.46
29		.314	26.04
1895.40	4	48.341	26.63
East	4	48.321	26.02
West	4	.341	26.63
			−26.32
Flex.			+.03
1894.94	8	16 14 48.331	−25 20 26.29
P. M.		.000	.00
Obs. − C. T.		+.01	−1.6
Obs. − N. A. '97		+.070	−1.02

No. 83. τ SCORPII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	3.2	16 29 20.71	−27 59 51.4

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
June 20	E	16.959	45.01
21		17.007	44.59
25		.966	45.34
26		.019	44.72
1894.48	4	16.988	44.91
1895.			
May 21	W	20.756	53.18
22		.739	52.75
23		.674	52.46
29		.726	52.58
1895.40	4	20.724	52.74
East	4	20.716	52.64
West	4	.724	52.74
			−52.69
Flex.			+.03
1894.94	8	16 29 20.720	−27 59 52.66
P. M.		.000	.00
Obs. − C. T.		+.01	−1.3
Obs. − N. A. '97		+.067	−0.23

No. 84. ε SCORPII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	2.4	16 43 21.70	−34 6 11.9

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
June 20	E	17.801	2.17
21		.813	2.63
25		.834	2.70
26		.880	2.43
1894.48	4	17.832	2.48
1895.			
May 13	W	21.730	8.49
14		.702	9.41
16		.708	8.64
17		.620	8.49
1895.37	4	21.690	8.76
East	4	21.759	9.06
West	4	.690	8.76
			−8.91
Flex.			+.04
1894.92	8	16 43 21.725	−34 6 8.87
P. M.		−.004	−.02
Obs. − C. T.		+.02	+3.0
Obs. − N. A. '97		+.011	−1.22

No. 85. d HERCULIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.3	16 57 43.741	+33 43 13.53

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
June 20	E	41.516	18.21
21		.568	18.54
25		.486	18.90
26		.559	18.68
1894.48	4	41.532	18.58
1895.			
May 21	W	43.804	13.33
22		.735	13.38
23		.788	13.42
29		.731	13.55
1895.40	4	43.765	13.42
East	4	43.745	13.20
West	4	.765	13.42
			13.31
Flex.			−.05
1894.94	8	16 57 43.755	+33 43 13.26
P. M.		.000	.00
Obs. − A. E.		+.014	−0.27

No. 86. A 1 OPHIUCHI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	4.7	17 8 53.42	−26 26 55.2

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
June 20	E	49.722	49.27
21		.695	49.18
25		.689	49.24
26		.725	49.24
1894.48	4	49.708	49.23
1895.			
May 21	W	53.406	55.41
22		.427	54.51
23		.350	54.65
29		.409	54.71
1895.40	4	53.398	54.82
East	4	53.429	53.67
West	4	.398	54.82
			−54.24
Flex.			+.03
1894.94	8	17 8 53.413	−26 26 54.21
P. M.		−.002	−.07
Obs. − C. T.		−.01	+0.9

South prec. star.

No. 87. ω HERCULIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	5.4	17 16 43.78	+32 36 11.4

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
May 22	E	41.595	15.25
23		.480	15.08
June 8		.560	15.57
19		.623	15.14
1894.42	4	41.565	15.26
1895.			
May 21	W	43.885	10.12
22		.827	9.64
23		.790	11.02
29		.770	10.11
1895.40	4	43.818	10.22
East	4	43.798	11.50
West	4	.818	10.22
			10.86
Flex.			−.05
1894.91	8	17 16 43.808	+32 36 10.81
P. M.		+.001	−.09
Obs. − C. T.		+.03	−0.7

No. 88. b OPHIUCHI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.4	17 19 57.437	−24 4 42.44

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
June 20	E	53.787	39.17
21		.760	39.56
25		.782	38.86
26		.853	39.17
1894.48	4	53.796	39.19
1895.			
July 15	W	57.495	43.20
16		.375	42.85
17		.443	41.79
19		.345	42.94
1895.54	4	57.414	42.69
East	4	57.457	42.68
West	4	.414	42.69
			42.69
Flex.			+.03
1895.01	8	17 19 57.435	−24 4 42.66
P. M.		.000	.00
Obs. − A. E.		−.002	−0.22

No. 89. d OPHIUCHI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	4.4	17 20 38.79	−29 46 19.7

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
July 5	E	35.069	14.86
6		.157	14.03
11		.080	14.01
13		.124	14.76
1894.52	4	35.107	14.42
1895.			
July 22	W	38.993	17.93
23		.988	18.23
24		39.038	18.62
25		.960	18.14
1895.56	4	38.995	18.23
East	4	38.933	17.85
West	4	.995	18.23
			−18.04
Flex.			+.03
1895.04	8	17 20 38.964	−29 46 18.01
P. M.		.000	+.01
Obs. − C. T.		+.17	+1.7

No. 90. σ OPHIUCHI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
N. A.	5.	17 21 18.227	+4 13 54.29

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
June 8	E	15.320	57.71
19		.237	57.98
22		.258	57.51
27		.325	57.40
1894.47	4	15.285	57.65
1895.			
May 13	W	18.266	54.56
14		.213	54.36
16		.289	54.71
17		.264	54.65
1895.37	4	18.258	54.57
East	4	18.260	54.28
West	4	.258	54.57
			54.42
Flex.			.00
1894.92	8	17 21 18.259	+4 13 54.42
P. M.		.000	.00
Obs. − N. A.		+.032	+0.13

No. 217. υ SCORPII.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
N. A. '97	2.8	17 23 37.417	−37 12 41.46

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
May 21	W	37.521	42.83
22		.504	42.93
23		.551	42.51
29		.522	41.61
1895.39	4	37.524	42.47
1896.			
June 8	E	41.492	45.52
10		.545	46.66
12		.583	44.23
24		.586	45.95
1896.45	4	41.551	45.59
West	4	37.524	42.47
East	4	.476	42.43
			−42.45
Flex.			+.04
1895.92	8	17 23 37.500	−37 12 42.41
P. M.		+.004	+.03
Obs. − N. A. '97		+.087	−0.92

No. 219. λ SCORPII.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
N. A. '97	1.7	17 26 28.674	−37 1 36.20

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
July 15	W	28.711	37.42
16		.653	37.99
17		.724	36.60
19		.627	37.28
1895.54	4	28.679	37.32
1896.			
June 16	E	32.739	40.05
17		.711	40.52
19		.719	38.79
22		.693	38.59
1896.47	4	32.715	39.49
West	4	28.679	37.32
East	4	.645	36.57
			−36.94
Flex.			+.04
1896.01	8	17 26 28.662	−37 1 36.90
P. M.		+.001	+.05
Obs. − N. A. '97		−.011	−0.65

No. 153. κ SCORPII.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	2.6	17 35 13.39	−38 58 29.4

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
May 21	W	13.345	32.83
22		.424	31.98
23		.426	32.12
29		.394	32.24
1895.40	4	13.397	32.29
1896.			
June 8	E	17.525	35.01
10		.566	[36.97]
11		.526	35.61
12		.566	34.07
1896.44	4, 3	17.546	34.90
West	4	13.397	32.29
East	4, 3	.398	32.74
			−32.51
Flex.			+.04
1895.92	8, 7	17 35 13.397	−38 58 32.47
P. M.		.000	+.03
Obs. − C. T.		+.01	−3.0
Obs. − N. A. '97		−.069	−1.57

No. 155. γ 2 SAGITTARII.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	2.9	17 59 3.744	−30 25 30.67
C. T.		3.76	30.3
B. J		3.772	31.14

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
July 16	W	3.738	29.84
17		.737	29.78
19		.637	30.10
26		.680	31.28
1895.55	4	3.698	30.25
1896.			
June 8	E	7.541	29.82
10		.636	31.26
11		.630	30.87
12		.588	30.18
1896.45	4	7.599	30.53
West	4	3.698	30.25
East	4	.741	30.45
			−30.35
Flex.			+.04
1896.00	8	17 59 3.720	−30 25 30.31
P. M.		+.005	+.21
Obs. − A. E.		−.019	+0.57
Obs. − C. T.		−.03	+0.2
Obs. − N. A. '97		+.040	−0.42
Obs. − B. J.		−.047	+1.04

Error 1 min. C. T.

No. 91. p 1 OPHIUCHI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	4.2	18 0 8.70	+2 31 27.4

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
July 5	E	5.926	26.69
6		.962	27.02
11		.964	26.99
16		.969	26.58
1894.52	4	5.955	26.82
1895.			
July 22	W	8.995	26.36
23		9.038	26.38
24		.989	26.70
25		.954	26.58
1895.56	4	8.994	26.50
East	4	8.969	26.83
West	4	.994	26.50
			26.67
Flex.			.00
1895.04	8	18 0 8.981	+2 31 26.67
P. M.		−.001	+.04
Obs. − C. T.		+.28	−0.7

The principal star is S. fol.

No. 220. η SAGITTARII.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
N. A. '97	3.0	18 10 31.348	−36 47 32.72

Date. 1895.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
July 15	W	31.333	34.99
16		.366	35.19
17		.335	34.43
19		.266	34.96
1895.54	4	31.325	34.89
1896.			
June 8	E	35.485	34.25
10		.388	34.29
11		.430	35.17
12		.376	33.35
1896.44	4	35.420	34.26
West	4	31.325	34.89
East	4	.349	35.19
			−35.04
Flex.			+.04
1895.99	8	18 10 31.337	−36 47 35.00
P. M.		+.010	+.04
Obs. − N. A. '97		−.001	−2.24

No. 92. δ SAGITTARII.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	2.8	18 14 16.19	−29 52 21.5

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
July 6	E	12.501	21.99
11		.445	21.98
13		.478	21.77
16		.384	21.98
1894.53	4	12.452	21.93
1895.			
July 22	W	16.264	20.01
23		.347	21.13
24		.354	21.50
25		.306	20.17
1895.56	4	16.318	20.70
East	4	16.291	20.68
West	4	.318	20.70
			−20.69
Flex.			+.03
1895.04	8	18 14 16.304	−29 52 20.66
P. M.		.000	.00
Obs. − C. T.		+.11	+0.8
Obs. − N. A. '97		+.038	−0.01

No. 93. ε SAGITTARII.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	2.1	18 17 12.12	−34 26 5.9
N. A.		12.160	2.13

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
June 20	E	8.140	3.90
21		.132	4.10
25		.147	3.40
26		.167	3.21
1894.48	4	8.147	3.65
1895.			
July 15	W	12.099	1.39
16		.166	[59.85]
17		.124	1.36
19		.082.	2.34
26		.124	2.30
1895.55	5, 4	12.119	1.85
East	4	12.133	2.15
West	5, 4	.119	1.85
			−2.00
Flex.			+.04
1895.02	9, 8	18 17 12.125	−34 26 1.96
P. M.		.000	.00
Obs. − C. T.		.00	+3.9
Obs. − N. A.		−.035	+0.17

No. 94. λ SAGITTARII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	2.9	18 21 29.431	−25 28 47.03
N. A.		29.402	46.43

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
July 5	E	25.698	47.57
6		.694	47.60
11		.681	47.55
13		.769	47.79
1894.52	4	25.710	47.63
1895.			
July 22	W	29.422	45.93
23		.477	46.49
24		.396	46.81
25		.448	46.42
1895.56	4	29.436	46.41
East	4	29.417	45.75
West	4	.436	46.41
			−46.08
Flex.			+.03
1895.04	8	18 21 29.426	−25 28 46.05
P. M.		.000	+.01
Obs. − A. E.		−.005	+0.99
Obs. − N. A.		+.024	+0.39

No. 95. I AQUILAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.0	18 29 29.595	−8 19 2.68

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
July 5	E	26.286	4.61
6		.355	4.44
11		.284	4.84
13		.263	4.72
1894.52	4	26.297	4.65
1895.			
July 22	W	29.554	2.28
23		.594	2.03
24		.554	[4.16]
25		.570	2.35
26		.587	2.77
1895.56	5, 4	29.572	2.36
East	4	29.563	2.08
West	5, 4	.572	2.36
			−2.22
Flex.			+.01
1895.04	9, 8	18 29 29.568	−8 19 2.21
P. M.		.000	+.01
Obs. − A. E.		−.027	+0.48

No. 156. φ SAGITTARII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	3.7	18 39 5.73	−27 5 54.2

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
July 15	W	5.782	54.12
16		.769	54.44
17		.810	53.90
19		.651	54.68
1895.54	4	5.753	54.28
1896.			
June 16	E	9.582	50.14
17		.509	50.18
19		.607	50.41
22		.566	50.31
1896.47	4	9.566	50.26
West	4	5.753	54.28
East	4	.819	53.67
			−53.97
Flex.			+.03
1896.01	8	18 39 5.786	−27 5 53.94
P. M.		−.001	+.02
Obs. − C. T.		+.05	+0.3
Obs. − N. A. '97		+.053	+0.61

No. 96. 50 DRACONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.6	18 49 45.509	+75 18 36.10

Date. 1894.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″
June 20	E	47.48	32.12
21		47.48	32.41
25		47.46	32.70
26		47.46	32.19
1894.48	4	47.470	32.36
1895.	U. C.		
July 15	W	45.71	36.43
16		45.58	36.34
17		45.71	36.68
19		45.86	36.51
1895.54	4	45.715	36.49
East	4	45.563	36.68
West	4	.715	36.49
U. C.			36.58
Flex.			−.12
1895.01	8	18 49 45.639	+75 18 36.46
1895.	L. C.		
Jan. 28	W	45.62	36.69
29		45.64	36.73
30		45.57	36.46
31		45.57	36.26
1895.08	4	45.600	36.54
1895.	L. C.		
Nov. 7	E	45.65	36.07
13		45.68	35.74
19		45.69	36.22
Dec. 9		45.62	35.34
1895.89	4	45.660	35.84
West	4	45.600	36.54
East	4	.660	35.84
L. C.			36.19
Flex.			+.15
1895.48	8	18 49 45.630	+75 18 36.34
U. C.	8	45.639	36.46
L. C.	8	.630	36.34
1895.24	16	18 49 45.634	+75 18 36.40
P. M.		+.001	−.02
Obs. − A. E.		+.126	+0.28
Sec. δ 4.0			

No. 222. ξ 2 SAGITTARII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
N. A. '97	3.5	18 51 27.920	−21 14 39.33

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
July 22	W	27.975	40.31
23		.953	39.71
24		.920	40.52
25		.900	40.03
1895.56	4	27.937	40.14
1896.			
June 8	E	31.512	35.46
10		.513	35.53
11		.544	35.69
12		.505	35.97
1896.44	4	31.518	35.66
West	4	27.937	40.14
East	4	.939	40.13
			−40.14
Flex.			+.03
1896.00	8	18 51 27.938	−21 14 40.11
P. M.		.000	+.01
Obs. − N. A. '97		+.018	−0.77

No. 97. ζ SAGITTARII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	2.9	18 55 55.76	−30 1 48.8

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
July 5	E	52.149	52.89
6		.065	52.20
11		.116	52.46
13		.065	51.86
1894.52	4	52.099	52.35
1895.			
July 15	W	55.857	47.51
16		.930	48.15
17		.843	47.06
19		.802	48.41
1895.54	4	55.858	47.78
East	4	55.921	47.51
West	4	.858	47.78
			−47.64
Flex.			+.03
1895.03	8	18 55 55.890	−30 1 47.61
P. M.		.000	.00
Obs. − C. T.		+.13	+1.2
Obs. − N. A. '97		+.083	−0.47

No. 223. τ SAGITTARII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
N. A. '97	3.5	19 0 23.049	−27 49 24.85

Date. 1895.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
July 22	W	23.025	25.04
23		.114	25.10
24		.082	25.97
25		.099	25.50
1895.56	4	23.080	25.40
1896.			
June 16	E	26.847	20.16
17		.810	19.84
19		.834	20.69
22		.862	20.01
1896.47	4	26.838	20.17
West	4	23.080	25.40
East	4	.084	25.40
			−25.40
Flex.			+.03
1896.01	8	19 0 23.082	−27 49 25.37
P. M.		+.007	+.25
Obs. − N. A. '97		+.040	−0.27

No. 98. d SAGITTARII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.0	19 11 29.486	−19 8 22.34
303.		29.480	21.78

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
July 5	E	26.020	29.30
6		25.936	28.96
11		.935	29.20
13		.001	29.45
1894.52	4	25.973	29.23
1895.			
July 22	W	29.519	22.61
23		.516	22.23
24		.488	22.86
25		.533	22.49
1895.56	4	29.514	22.55
East	4	29.487	23.08
West	4	.514	22.55
			−22.81
Flex.			+.03
1895.04	8	19 11 29.500	−19 8 22.78
P. M.		.000	.00
Obs. − A. E.		+.014	−0.44
Obs. − 303		+.020	−1.00

No. 99. b AQUILAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	5.3	19 19 57.92	+11 43 14.4

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
July 5	E	54.925	4.65
6		.908	4.67
11		.923	4.33
13		.930	3.94
1894.52	4	54.921	4.40
1895.			
July 22	W	57.816	11.79
23		.792	11.66
24		.766	11.17
25		.816	11.53
1895.56	4	57.797	11.54
East	4	57.733	11.25
West	4	.797	11.54
			11.40
Flex.			−.01
1895.04	8	19 19 57.765	+11 43 11.39
P. M.		−.002	−.03
Obs. − C. T.		−.16	−3.0

No. 100. κ AQUILAE.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.0	19 31 14.548	−7 15 38.44
C. T.		14.55	37.9
303.		14.556	38.19

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
July 5	E	11.336	46.99
6		.357	46.34
11		.346	46.92
13		.311	46.97
1894.52	4	11.338	46.81
1895.			
July 22	W	14.584	38.54
23		.535	38.49
24		.554	38.94
25		.543	38.59
1895.56	4	14.554	38.64
East	4	14.568	39.04
West	4	.554	38.64
			−38.84
Flex.			+.01
1895.04	8	19 31 14.561	−7 15 38.83
P. M.		.000	.00
Obs. − A. E.		+.013	−0.39
Obs. − C. T.		+.01	−0.9
Obs. − 303.		+.005	−0.64

No. 101. β SAGITTARII.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	4.5	19 36 19.993	+17 13 57.83

Date. 1894.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
July 5	E	17.281	50.22
6		.244	50.73
11		.303	50.29
13		.243	50.03
1894.52	4	17.268	50.32
1895.			
July 22	W	19.977	58.41
23		.923	58.27
24		.936	58.47
25		.987	58.50
1895.56	4	19.956	58.41
East	4	19.962	58.50
West	4	.956	58.41
			58.46
Flex.			−.02
1895.04	8	19 36 19.959	+17 13 58.44
P. M.		.000	.00
Obs. − A. E.		−.034	+0.61

No. 102. c SAGITTARII.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	4.5	19 56 12.142	−28 0 5.15
C. T.		12.05	5.4

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Sept. 14	E	4.719	25.06
20		.783	26.43
25		.788	25.24
1893.72	3	4.763	25.58
1894.			
July 5	E	8.447	15.42
6		.425	14.97
18		.513	15.80
23		.468	15.42
1894.53	4	8.463	15.40
1895.			
July 23	W	12.174	5.56
24		.147	5.88
25		.159	5.13
26		.171	6.43
1895.56	4	12.163	5.75
East	7	12.149	5.88
West	4	.163	5.75
			−5.82
Flex.			+.03
1894.84	11	19 56 12.156	−28 0 5.79
P. M.		.000	.00
Obs. − A. E.		+.014	−0.64
Obs. − C. T.		+.11	−0.4

No. 103. τ AQUILAE.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	5.7	19 59 0.695	+6 58 54.01

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Sept. 13	E	58 54.696	34.42
15		.744	34.68
22		.755	34.85
1893.71	3	54.732	34.65
1894.			
July 11	E	57.640	44.84
13		.664	44.65
20		.668	44.24
25		.690	44.79
1894.55	4	57.666	44.63
1895.			
July 15	W	59 0.650	54.92
16		.613	54.90
17		.570	54.92
19		.579	54.54
1895.54	4	0.603	54.82
East	7	0.595	54.57
West	4	.603	54.82
			54.69
Flex.			−.01
1894.83	11	19 59 0.599	+6 58 54.68
P. M.		.000	.00
Obs. − A. E.		−.096	+0.67

No. 104. π CAPRICORNI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	5.1	20 21 18.708	−18 33 20.90

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Sept. 13	E	11.855	44.73
15		.848	44.24
22		.865	43.93
1893.71	3	11.856	44.30
1894.			
July 16	E	15.219	33.43
20		.196	33.73
1894.55	2	15.208	33.58
1895.			
Aug. 12	W	18.621	20.76
14		.641	21.38
16		.670	21.18
21		.702	20.99
1895.62	4	18.658	21.08
East	5	18.691	21.55
West	4	.658	21.08
			−21.32
Flex.			+.02
1894.88	9	20 21 18.675	−18 33 21.30
P. M.		.000	.00
Obs. − A. E.		−.033	−0.40

No. 105. GROOMBRIDGE 3241.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	6.5	20 30 27.551	+72 10 33.44

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″
Sept. 13	E	28.09	8.96
15		28.12	9.04
22		28.12	8.39
1893.71	3	28.110	8.80
1894.	U. C.		
July 16	E	27.87	20.91
20		27.89	21.54
1894.55	2	27.880	21.22
1895.	U. C.		
Aug. 12	W	27.68	33.36
14		27.76	33.32
16		27.70	33.18
21		27.59	34.17
1895.62	4	27.682	33.51
East	5	27.665	33.37
West	4	.682	33.51
U. C.			33.44
Flex.			−.12
1894.88	9	20 30 27.673	+72 10 33.32
1895.	L. C.		
Feb. 1	W	27.58	32.50
2		27.71	33.96
4		27.63	33.74
5		27.66	33.77
1895.09	4	27.645	33.49
1896.	L. C.		
Jan. 2	E	27.31	44.33
6		27.57	44.55
Feb. 7		27.47	45.15
12		27.40	44.26
1896.06	4	27.437	44.57
West	4	27.645	33.49
East	4	.658	32.33
L. C.			32.91
Flex.			+.15
1895.58	8	20 30 27.651	+72 10 33.06
U. C.	9	27.673	33.32
L. C.	8	.651	33.06
1895.23	17	20 30 27.662	+72 10 33.19
P. M.		+.001	.00
Obs. − A. E.		+.112	−0.25
Sec. δ 3.3			

No. 106. ψ CAPRICORNI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	4.3	20 39 52.747	−25 38 53.03
C. T.		52.69	53.4

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Sept. 13	E	45.647	39 18.54
15		.547	18.98
22		.622	18.33
1893.71	3	45.605	18.62
1894.			
July 20	E	49.227	6.04
25		.212	6.45
1894.56	2	49.219	6.24
1895.			
Aug. 12	W	52.737	38 53.46
14		.746	53.94
16		.748	53.60
21		.683	53.66
1895.62	4	52.728	53.66
East	5	52.759	53.11
West	4	.728	53.66
			−53.38
Flex.			+.03
1894.88	9	20 39 52.744	−25 38 53.35
P. M.		−.001	−.02
Obs. − A. E.		−.004	−0.34
Obs. − C. T.		+.05	0.0

No. 107. 3 AQUARII.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	4.7	20 42 11.74	−5 24 42.8

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Sept. 14	E	5.452	25 9.24
20		.586	9.90
25		.474	9.67
1893.72	3	5.504	9.60
1894.			
July 18	E	8.667	24 56.51
23		.688	56.18
1894.55	2	8.678	56.34
1895.			
July 30	W	11.853	43.63
31		.861	43.32
Aug. 5		.817	43.67
8		.820	43.52
1895.59	4	11.838	43.54
East	5	11.844	43.42
West	4	.838	43.54
			−43.48
Flex.			+.01
1894.86	9	20 42 11.841	−5 24 43.47
P. M.		.000	.00
Obs. − C. T.		+.10	−0.7

No. 108. μ AQUARII.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	4.8	20 46 59.453	−9 22 38.16
C. T.		59.38	37.2

Date. 1893.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Sept. 13	E	52.992	23 4.63
15		.963	4.33
22		53.037	4.44
1893.71	3	52.997	4.47
1894.			
July 16	E	56.187	22 51.21
20		.230	51.13
1894.55	2	56.208	51.17
1895.			
Aug. 12	W	59.432	37.37
14		.370	37.82
16		.463	37.48
21		.455	37.32
1895.62	4	59.430	37.50
East	5	59.458	37.79
West	4	.430	37.50
			−37.64
Flex.			+.01
1894.88	9	20 46 59.444	−9 22 37.63
P. M.		.000	.00
Obs. − A. E.		−.009	+0.53
Obs. − C. T.		+.06	−0.4

No. 159. ζ MICROSCOPIUM.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	5.5	20 56 15.34	−39 2 27.4

Date. 1895.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
July 30	W	15.483	30.47
31		.415	29.97
Aug. 5		.441	28.91
8		.464	29.41
1895.59	4	15.451	29.69
1895.			
Sept. 4	W	15.420	30.19
6		.376	28.73
19		.444	29.45
23		.361	29.50
1895.70	4	15.400	29.47
West	4	15.451	29.69
East	4	.400	29.47
			−29.58
Flex.			+.04
1895.65	8	20 56 15.425	−39 2 29.54
P. M.		+.003	+.07
Obs. − C. T.		+.09	−2.1

No. 109. ϑ CAPRICORNI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
N. A.	4	21 0 2.661	−17 39 0.38

Date. 1893.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Sept. 14	E	20 59 55.904	28.91
20		.932	29.51
25		.967	29.21
1893.72	3	55.934	29.21
1894.			
July 18	E	59.403	14.20
23		.365	14.50
1894.55	2	59.384	14.35
1895.			
Aug. 12	W	21 0 2.691	38 59.96
14		.764	60.04
16		.723	59.80
21		.726	59.61
1895.62	4	2.726	59.85
East	5	2.719	60.51
West	4	.726	59.85
			39 0.18
Flex.			+.02
1894.88	9	21 0 2.722	−17 39 0.16
P. M.		.000	−.01
Obs. − N. A.		+.061	+0.21

No. 160. 4 PISCIUM AUS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	4.9	21 11 34.20	−32 36 40.4

Date. 1895.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
July 30	W	34.374	41.23
31		.314	41.78
Aug. 5		.332	40.46
8		.365	40.63
1895.59	4	34.346	41.02
1895.			
Sept. 4	E	34.276	39.99
6		.322	41.16
19		.302	40.54
23		.224	40.65
1895.70	4	34.281	40.58
West	4	34.346	41.02
East	4	.281	40.58
			−40.80
Flex.			+.04
1895.65	8	21 11 34.314	−32 36 40.76
P. M.		−.001	+.03
Obs. − C. T.		+.11	−0.3

No. 110. σ CYGNI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	4.3	21 13 17.39	+38 57 16.2

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Sept. 13	E	12.725	56 46.75
15		.724	46.69
25		.754	46.81
1893.72	3	12.734	46.75
1894.			
July 18		15.148	57 1.10
23		.086	1.69
1894.55	2	15.117	1.39
1895.			
Aug. 12	W	17.424	16.49
14		.495	16.21
16		.459	16.44
21		.433	16.37
1895.62	4	17.453	16.38
East	5	17.456	16.54
West	4	.453	16.38
			16.46
Flex.			−.06
1894.88	9	21 13 17.455	+38 57 16.40
P. M.		.000	.00
Obs. − C. T.		+.06	+0.2

No. 111. GROOMBRIDGE 3548.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	7.4	21 20 32.64	+86 36 8.0

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″
Sept. 14	E	54.60	35 36.76
20		54.15	37.84
25		54.42	37.86
1893.72	3	54.390	37.49
1894.	U. C.		
July 18	E	43.39	52.49
23		42.97	53.08
1894.55	2	43.180	52.78
1895.	U. C.		
July 30	W	32.43	36 7.84
31		32.45	7.58
Aug. 5		32.28	7.56
8		31.79	7.59
1895.59	4	32.238	7.64
East	5	31.785	8.24
West	4	32.238	7.64
U. C.			7.94
Flex.			−.13
1894.86	9	21 20 32.011	+86 36 7.81
1895.	L. C.		
Feb. 1	W	32.14	8.17
2		31.73	8.03
4		32.13	7.33
5		32.20	7.71
1895.09	4	32.050	7.81
1896.	L. C.		
Jan. 2	E	19.90	22.63
6		21.24	22.55
Feb. 7		20.51	22.83
12		20.30	22.35
1896.06	4	20.488	22.59
West	4	32.050	7.81
East	4	31.863	7.21
L. C.			7.51
Flex.			+.14
1895.58	8	21 20 31.957	+86 36 7.65
U. C.	9	32.011	7.81
L. C.	8	31.957	7.65
1895.22	17	21 20 31.984	+86 36 7.73
P. M.		−.009	−.01
Obs. − C. T.		−.66	−0.3
Sec. δ 16.9			

No. 112. ξ AQUARII.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
A. E.	4.8	21 32 9.780	−8 19 30.18

Date. 1893.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Sept. 13	E	3.362	20 2.25
15		.304	1.83
22		.389	2.42
1893.71	3	3.352	2.17
1894.			
July 16	E	6.545	19 46.22
20		.570	45.78
1894.55	2	6.557	46.00
1895.			
July 30	W	9.763	30.45
31		.797	30.45
Aug. 5		.744	30.14
8		.823	30.30
1895.59	4	9.782	30.33
East	5	9.740	30.06
West	4	.782	30.33
			−30.19
Flex.			+.01
1894.86	9	21 32 9.761	−8 19 30.18
P. M.		+.001	.00
Obs. − A. E.		−.018	0.00

No. 161. γ GRUS.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
C. T.	3.0	21 47 34.23	−37 51 30.7

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Oct. 4	W	30.659	48.98
5		.709	48.77
9		.681	48.92
10		.648	48.98
1894.77	4	30.674	48.91
1895.			
Sept. 4	W	34.275	31.10
6		.224	32.20
19		.360	31.50
23		.328	31.71
1895.70	4	34.297	31.63
West	4	34.314	32.11
East	4	.297	31.63
			−31.87
Flex.			+.04
1895.23	8	21 47 34.305	−37 51 31.83
P. M.		−.001	.00
Obs. − C. T.		+.07	−1.1
Obs. − N. A. '97		+.095	−0.48

No. 113. μ CAPRICORNI.

Cat.	Mag.	R. A. 1895.0. *h m s*	Decl. 1895.0. ° ′ ″
A. E.	5.2	21 47 34.306	−14 2 45.64

Date. 1893.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Sept. 13	E	27.710	3 19.45
15		.785	19.03
22		.782	18.96
1893.71	3	27.759	19.15
1894.			
July 16	E	31.054	2.11
20		.049	1.34
1894.55	2	31.052	1.72
1895.			
July 30	W	34.354	45.85
31		.393	45.33
Aug. 5		.313	45.58
8		.376	45.73
1895.59	4	34.359	45.62
East	5	34.288	45.25
West	4	.359	45.62
			−45.43
Flex.			+.02
1894.86	9	21 47 34.323	−14 2 45.41
P. M.		+.003	.00
Obs. − A. E.		+.020	+0.23

No. 114. 79 DRACONIS.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	6.6	21 51 33.275	+73 12 20.13

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″
Sept. 14	E	31.72	11 46.15
20		31.76	46.71
25		31.82	46.74
1893.72	3	31.767	46.53
1894.	U. C.		
July 18	E	32.38	12 3.19
23		32.36	4.29
1894.55	2	32.370	3.74
1895.	U. C.		
Aug. 12	W	33.27	20.33
14		33.39	20.90
16		33.27	20.28
21		33.17	20.06
1895.62	4	33.275	20.39
East	5	33.146	20.61
West	4	.275	20.39
U. C.			20.50
Flex.			−.12
1894.88	9	21 51 33.210	+73 12 20.38
P. M.		+.001	.00
1895.	L. C.		
Feb. 18	W	33.35	19.06
27		33.20	20.07
28		33.11	19.32
Mar. 4		33.13	19.15
1895.16	4	33.198	19.40
1896.	L. C.		
Jan. 2	E	33.90	37.74
6		34.03	36.30
Feb. 7		34.04	37.35
12		34.02	37.14
1896.06	4	33.998	37.13
West	4	33.198	19.40
East	4	.280	20.15
L. C.			19.77
Flex.			+.15
1895.61	8	21 51 33.239	+73 12 19.92
U. C.	9	33.210	20.38
L. C.	8	.239	19.92
1895.24	17	21 51 33.224	+73 12 20.15
P. M.		−.002	−.01
Obs. − A. E.		−.053	+0.01
Sec. δ 3.4			

No. 116. π AQUARII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.6	22 19 54.901	+0 50 40.59

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Oct. 2	E	48.706	4.09
3		.749	3.85
5		.719	3.78
10		.756	4.31
1893.76	4	48.732	4.01
1894.			
Oct. 3	W	51.836	21.76
4		.828	22.52
5		.808	22.84
9		.807	22.21
1894.76	4	51.820	22.33
East	4	54.861	40.35
West	4	.884	40.50
			40.42
Flex.			.00
1894.26	8	22 19 54.873	+0 50 40.42
P. M.		.000	.00
Obs. − A. E.		−.028	−0.17

No. 117. σ AQUARII.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.9	22 25 5.406	−11 12 54.68

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Oct. 11	E	24 59.127	13 32.41
12		.131	31.45
13		.111	32.25
17		.171	31.84
1893.79	4	59.135	31.99
1894.			
Oct. 3	W	25 2.304	13.59
4		.271	12.99
5		.312	13.04
9		.280	13.40
1894.76	4	2.292	13.26
East	4	5.494	11 55.28
West	4	.471	54.90
			−55.09
Flex.			+.02
1894.27	8	22 25 5.482	−11 12 55.07
P. M.		−.001	−.02
Obs. − A. E.		+.075	−0.41
Obs. − 303		+.036	−0.48

No. 118. 226 CEPHEI.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	5.7	22 30 25.918	+75 41 7.01

Date. 1893.	Obs. U. C.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Oct. 2	E	23.51	40 30.16
3		23 55	31.39
5		23.52	30.06
10		23.55	30.69
1893.76	4	23.528	30.58
1894.	U. C.		
Oct. 3	W	24.53	48.96
4		24.51	48.22
5		24.54	48.52
9		24.51	48.56
1894.76	4	24.522	48.56
East	4	25.682	41 7.66
West	4	.599	7.10
U. C.			7.38
Flex.			−.12
1894.26	8	22 30 25.640	+75 41 7.26
1895.	L. C.		
Mar. 4	W	25.51	6.31
Apr. 2		25.71	7.18
5		25.58	7.69
8		25.63	7.16
1895.24	4	25.608	7.08
1896.	L. C.		
Mar. 10	E	26.67	25.05
12		26.63	26.18
Apr. 2		26.75	25.68
May 7		26.62	25.91
1896.25	4	26.667	25.71
West	4	25.608	7.08
East	4	.591	7.17
L. C.			7.12
Flex.			+.15
1895.74	8	22 30 25.600	+75 41 7.27
U. C.	8	25.640	7.26
L. C.	8	.600	7.27
1895.00	16	22 30 25.620	+75 41 7.26
P. M.		.000	.00
Obs. − A. E.		−.298	+0.25
Sec. δ 4.0			

No. 119. φ AQUARII.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	4.3	23 8 53.102	−6 36 53.88

Date. 1893.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Oct. 2	E	46.828	37 33.12
3		.824	33.33
5		.891	33.33
10		.822	33.12
1893.76	4	46.841	33.23
1894.			
Oct. 3	W	49.970	14.08
4		.973	13.80
5		.939	13.95
9		.967	13.80
1894.76	4	49.962	13.91
East	4	53.055	36 54.12
West	4	.069	54.35
			−54.24
Flex.			+.01
1894.26	8	23 8 53.062	−6 36 54.23
P. M.		+.001	−.14
Obs. − A. E.		−.039	−0.49

No. 163. γ SCULPTORIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	4.4	23 13 9.21	−33 6 13.7

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Oct. 10	W	6.104	34.35
12		.035	35.02
16		.052	34.85
22		.056	35.17
1894.79	4	6.062	34.85
1895.			
Sept. 4	W	9.256	15.86
6		.307	15.00
19		.240	14.46
23		.301	15.54
1895.70	4	9.276	15.22
West	4	9.311	15.22
East	4	.276	15.22
			−15.22
Flex.			+.04
1895.25	8	23 13 9.294	−33 6 15.18
P. M.		.000	+.01
Obs. − C. T.		+.08	−1.5

No. 120. o CEPHEI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	5.1	23 14 18.893	+67 32 13.59

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Oct. 11	E	13.898	31 34.22
12		.845	33.82
13		.883	34.23
17		.812	34.60
1893.79	4	13.859	34.22
1894.			
Oct. 3	W	16.289	53.17
4		.224	53.15
5		.229	53.02
9		.208	53.89
1894.76	4	16.238	53.31
East	4	18.723	32 13.53
West	4	.670	12.96
			13.25
Flex.			−.11
1894.28	8	23 14 18.696	+67 32 13.14
P. M.		+.010	+.01
Obs. − A. E.		−.187	−0.44
Sec. δ 2.7			

No. 121. 9 PISCIUM.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.3	23 22 38.488	+5 48 7.50

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Oct. 2	E	32.361	47 27.99
3		.401	28.66
5		.416	28.73
10		.425	28.79
1893.76	4	32.401	28.54
1894.			
Oct. 10	W	35.427	48.50
12		.433	48.20
16		.451	48.65
22		.431	48.20
1894.79	4	35.435	48.39
East	4	38.502	8.11
West	4	.485	8.18
			8.14
Flex.			−.01
1894.28	8	23 22 38.493	+5 48 8.13
P. M.		−.006	−.04
Obs. − A. E.		−.001	+0.59

No. 122. 39 H. CEPHEI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	5.7	23 27 49.31	+86 43 40.1

Date. 1893.	Obs. U. C.	Mean R. A. h m s	Mean Decl. ° ′ ″
Oct. 11	E	49.50	2.65
12		49.47	2.39
13		49.40	2.73
17		49.04	2.56
1893.79	4	49.352	2.58
1894.	U. C.		
Oct. 3	W	[47.65]	22.14
4		48.71	22.52
5		49.02	22.06
9		49.32	21.98
1894.76	3, 4	49.017	22.17
East	4	48.964	42.29
West	3, 4	.820	42.02
U. C.			42.16
Flex.			−.13
1894.27	7, 8	23 27 48.892	+86 43 42 03
1895.	L. C.		
Mar. 4	W	49.02	40.94
Apr. 2		49.53	42.00
5		49.26	41.77
8		49.51	41.30
1895.24	4	49.330	41.50
1896.	L. C.		
Mar. 10	E	48.60	44 1.89
12		49.01	2.51
Apr. 2		48.88	1.38
May 7		48.69	1.46
11		49.07	1.52
1896.27	5	48.850	1.75
West	4	49.330	43 41.50
East	5	.053	41.90
L. C.			41.70
Flex.			+.14
1895.76	9	23 27 49.192	+86 43 41.84
U. C.	7, 8	48.892	42.03
L. C.	9	49.192	41.84
1895.01	16, 17	23 27 49.042	+86 43 41.93
P. M.		.000	.00
Obs. − C. T.		−.27	+1.8
Sec. δ 17.5			

No. 164. β SCULPTORIS.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
C. T.	4.8	23 27 20.41	−38 23 56.4

Date. 1894.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Oct. 10	W	17.252	24 16.65
12		.262	17.18
16		.254	16.73
22		.212	18.06
1894.79	4	17.245	17.16
1895.			
Sept. 4	E	20.504	23 57.66
6		.436	57.25
19		.454	57.29
23		.506	55.45
1895.70	4	20.475	56.91
West	4	20.468	57.31
East	4	.475	56.91
			−57.11
Flex.			+.04
1895.25	8	23 27 20.472	−38 23 57.07
P. M.		−.001	.00
Obs. − C. T.		+.06	−0.7

No. 123. i 1 AQUARII.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	5.2	23 38 45.384	−18 51 34.65

Date. 1893.	Obs.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Oct. 11	E	39.105	52 14.86
12		.066	15.33
13		.122	14.60
17		.265	15.16
1893.79	4	39.139	14.99
1894.			
Oct. 10	W	42.254	51 54.63
12		.266	54.98
16		.232	55.32
22		.295	55.44
1894.79	4	42.262	55.09
East	4	45.369	35.06
West	4	.377	35.13
			−35.10
Flex.			+.02
1894.29	8	23 38 45.373	−18 51 35.08
P. M.		+.001	.00
Obs. − A. E.		−.010	−0.43

No. 124. GROOMBRIDGE 4163.

Cat.	Mag.	R. A. 1895.0.	Decl. 1895.0.
		h m s	° ′ ″
A. E.	6.6	23 49 43.549	+73 49 33.48

Date. 1893.	Obs. U. C.	Mean R. A. *h m s*	Mean Decl. ° ′ ″
Oct. 2	E	37.61	48 54.28
3		37.56	54.04
5		37.57	54.09
10		37.58	53.62
1893.76	4	37.580	54.01
1894.	U. C.		
Oct. 3	W	40.33	49 13.91
4		40.20	13.14
5		40.33	13.63
9		40.39	13.86
1894.76	4	40.312	13.64
East	4	43.310	34.07
West	4	.178	33.67
U. C.			33.87
Flex.			−.12
1894.26	8	23 49 43.244	+73 49 33.75
1895.	L. C.		
Mar. 4	W	43.24	32.46
Apr. 2		43.32	34.01
5		43.28	34.35
8		43.29	34.10
1895.24	4	43.282	33.73
1896.	L. C.		
Mar. 10	E	46.09	53.35
12		46.14	54.37
May 7		46.23	53.79
11		46.09	53.61
1896.28	4	46.137	53.78
West	4	43.282	33.73
East	4	.270	33.75
L. C.			33.74
Flex.			+.15
1895.76	8	23 49 43.276	+73 49 33.89
U. C.	8	43.244	33.75
L. C.	8	.276	33.89
1895.01	16	23 49 43.260	+73 49 33.82
P. M.		.000	.00
Obs. − A. E.		−.289	+0.34
Sec. δ 3.6			

No. 125. 30 PISCIUM.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	4.6	23 56 34.42	−6 35 51.5

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Oct. 11	E	28.353	36 31.64
12		.405	31.56
13		.384	31.97
17		.384	32.06
1893.79	4	28.381	31.81
1894.			
Oct. 3	W	31.436	11.58
4		.377	11.80
5		.454	11.78
9		.403	12.05
1894.76	4	31.418	11.80
East	4	34.531	35 51.71
West	4	.493	51.75
			−51.73
Flex.			+.01
1894.27	8	23 56 34.512	−6 35 51.72
P. M.		+.002	−.03
Obs. − C. T.		+.09	−0.2

No. 126. 2 CETI.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
C. T.	4.4	23 58 21.58	−17 55 13.0

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Oct. 2	E	15.478	54.22
3		.552	54.60
5		.532	55.25
10		.418	55.56
1893.76	4	15.495	54.91
1894.			
Oct. 25	W	18.570	34.28
29		.541	33.99
Nov. 5		.600	34.34
6		.547	34.96
1894.84	4	18.564	34.39
East	4	21.646	14.81
West	4	.639	14.34
			−14.57
Flex.			+.02
1894.30	8	23 58 21.643	−17 55 14.55
P. M.		.000	+.01
Obs. − C. T.		+.06	−1.5
Obs. − 303		−.005	−0.76

No. 127. 33 PISCIUM.

Cat.	Mag.	R. A. 1895.0. h m s	Decl. 1895.0. ° ′ ″
A. E.	4.7	23 59 57.666	−6 17 41.41

Date. 1893.	Obs.	Mean R. A. h m s	Mean Decl. ° ′ ″
Nov. 2	E	51.375	18 23.06
3		.524	22.57
13		.484	22.51
14		.496	22.31
1893.86	4	51.470	22.61
1894.			
Oct. 10	W	54.604	1.87
12		.567	2.34
16		.550	1.61
22		.604	2.22
1894.79	4	54.581	2.01
East	4	57.615	17 42.50
West	4	.654	41.96
			−42.23
Flex.			+.01
1894.32	8	23 59 57.635	−6 17 42.22
P. M.		−.001	+.06
Obs. − A. E.		−.032	−0.75

TABLE XVI. In this table are given the observed places of 158 Ephemeris stars, of which, one only is included in B. J.; arranged in order of Right Ascension. Proper motion has *not* been included, in the observed mean place, for the epoch 1895.0. The epoch of observation is given in the table, and the correction for proper motion can be applied directly to the observed place. In the Ephemeris comparisons, the correction for proper motion, from each, has been included.

The mean differences, (Obs. – Eph.), are given at the foot of the table, and the $\Delta\alpha$, and the corresponding residuals have been divided by Sec. δ, for the means.

TABLE XVI.—OBSERVED PLACES OF STARS NOT IN B. J. EPHEMERIS COMPARISON.

No.	Star.	R. A. 1895.0.	Decl. 1895.0.	Epoch	Obs. – A. E.		Obs. – C. T.		Obs. – N. A.		Obs. – 303.	
		h m s	° ′ ″		*s*	″	*s*	″	*s*	″	*s*	″
1	ρ Androm.	0 12 50.418	+36 12 11.29	'94.32	–.121	+0.40	. . .	. . .	. . .	. . .	. . .	. . .
2	44 Piscium	0 20 1.190	+ 1 21 29.11	94.32	+.014	–0.28	. . .	. . .	. . .	. . .	. . .	. . .
4	13 Ceti	0 29 50.573	– 4 10 15.45	94.31	. . .	. . .	+.13	–0.1	. . .	. . .	. . .	. . .
5	Piazzi 130	0 31 57.052	–25 20 42.88	94.33	. . .	. . .	+.07	+1.2	. . .	. . .	. . .	. . .
6	Piazzi 189	0 42 52.435	+ 4 44 27.32	94.31	. . .	. . .	+.38	+1.3	. . .	. . .	. . .	. . .
7	ν Androm.	0 44 1.298	+40 30 24.93	94.33	. . .	. . .	+.20	–0.5	. . .	. . .	. . .	. . .
129	α Sculptoris	0 53 32.821	–29 55 30.76	95.28	. . .	. . .	+.06	–0.6	. . .	. . .	. . .	. . .
8	μ Cassiop.	1 1 16.723	+54 24 19.64	94.32	. . .	. . .	–.03	–1.0	. . .	. . .	. . .	. . .
9	f Piscium	1 12 22.910	+ 3 3 41.28	94.33	–.004	+0.01	. . .	. . .	. . .	. . .	. . .	. . .
10	38 Cassiop.	1 23 24.846	+69 43 26.73	94.32	+.024	+0.06	. . .	. . .	. . .	. . .	. . .	. . .
11	υ Androm.	1 30 37.961	+40 52 48.78	94.32	–.098	–0.73	. . .	. . .	. . .	. . .	. . .	. . .
12	π Piscium	1 31 31.852	+11 36 14.99	94.36	–.064	–1.24	. . .	. . .	. . .	. . .	. . .	. . .
13	ξ 1 Ceti	2 7 25.996	+ 8 21 14.24	94.36	–.064	–0.14	. . .	. . .	. . .	. . .	. . .	. . .
14	Piazzi 123	2 30 19.278	+ 6 23 7.22	94.41	. . .	. . .	+.12	+4.0	. . .	. . .	. . .	. . .
132	β Fornacis	2 44 41.806	–32 50 50.12	95.31	. . .	. . .	.00	–0.6	. . .	. . .	. . .	. . .
15	σ Arietis	2 45 41.672	+14 38 57.17	94.41	–.012	+0.38	. . .	. . .	+.055	+0.15	. . .	. . .
16	ε Arietis	2 53 12.382	+20 55 12.51	94.40	–.055	–0.58	–.04	–0.6	. . .	. . .	. . .	. . .
133	τ 3 Eridani	2 57 45.760	–24 2 11.16	95.32	. . .	. . .	+.07	–0.9	. . .	. . .	+.012	–0.91
17	ζ Arietis	3 8 51.872	+20 39 18.46	94.41	–.043	+0.08	. . .	. . .	. . .	. . .	. . .	. . .
18	A 1 Tauri	3 58 29.166	+21 47 41.10	94.41	–.068	+0.88	. . .	. . .	–.009	–0.18	. . .	. . .
19	o 2 Eridani	4 10 26.402	– 7 48 57.60	94.51	. . .	. . .	–.15	–0.2	. . .	. . .	. . .	. . .
202	υ 4 Eridani	4 13 55.257	–34 3 18.12	95.38	. . .	. . .	. . .	. . .	(+.227)	–0.96	. . .	. . .
135	d Eridani	4 20 5.569	–34 15 39.56	95.38	. . .	. . .	+.02	+0.2	. . .	. . .	. . .	. . .
20	m Persei	4 26 1.547	+42 50 21.42	94.41	–.054	+0.66	. . .	. . .	. . .	. . .	. . .	. . .
21	π 1 Orionis	4 44 8.362	+ 6 46 40.03	94.41	. . .	. . .	–.13	+0.3	+.081	+1.58	. . .	. . .
22	i Tauri	4 45 13.837	+18 39 39.27	94.51	–.036	+0.54	. . .	. . .	. . .	. . .	. . .	. . .
23	11 Orionis	4 58 34.091	+15 15 27.06	94.45	–.010	–0.07	. . .	. . .	. . .	. . .	. . .	. . .
203	μ Leporis	5 8 12.876	–16 19 48.14	95.38	. . .	. . .	. . .	. . .	+.021	+0.09	. . .	. . .
24	λ Aurigae	5 11 45.215	+40 0 19.64	94.56	. . .	. . .	.00	–0.9	. . .	. . .	. . .	. . .
137	o Colombae	5 13 41.865	–34 59 53.93	95.38	. . .	. . .	+.04	–0.7	. . .	. . .	. . .	. . .
25	χ Aurigae	5 25 53.570	+32 6 50.37	94.49	–.132	–1.38	. . .	. . .	. . .	. . .	. . .	. . .
26	Groom. 944	5 28 20.982	+85 8 36.13	95.23	–.722	–0.62	. . .	. . .	. . .	. . .	. . .	. . .
27	ζ Orionis	5 35 27.632	– 1 59 54.53	94.59	. . .	. . .	–.07	+0.4	. . .	. . .	. . .	. . .
28	α Colombae	5 35 50.791	–34 7 49.38	94.44	–.083	–0.10	–.16	–0.7	–.072	–0.73	. . .	. . .
204	β Colombae	5 47 15.500	–35 48 29.30	95.44	. . .	. . .	. . .	. . .	+.040	–0.47	. . .	. . .
138	γ Colombae	5 53 48.853	–35 17 41.68	95.44	. . .	. . .	–.03	–0.7	. . .	. . .	. . .	. . .
166	ζ Can. Maj.	6 16 16.935	–30 1 1.36	95.48	. . .	. . .	. . .	. . .	+.095	–0.02	. . .	. . .
30	ν Geminorum	6 22 43.680	+20 16 41.92	94.60	–.025	+0.24	. . .	. . .	. . .	. . .	. . .	. . .
31	Piazzi 305	6 56 50.003	+29 30 46.74	94.60	. . .	. . .	–.09	–3.6	. . .	. . .	. . .	. . .
206	22 Can. Maj.	6 57 32.178	–27 47 4.87	95.50	. . .	. . .	. . .	. . .	+.067	–0.84	. . .	. . .
207	o 2 Can. Maj.	6 58 38.361	–23 40 48.66	95.53	. . .	. . .	. . .	. . .	–.023	+0.05	. . .	. . .
32	25 Camelop.	7 8 58.552	+82 36 46.00	95.30	–.825	–0.77	. . .	. . .	. . .	. . .	. . .	. . .
141	π Puppis	7 13 26.060	–36 54 34.02	95.57	. . .	. . .	–.03	–1.5	+.005	–1.77	. . .	. . .
208	η Can. Maj.	7 19 56.471	–29 5 54.79	95.57	. . .	. . .	. . .	. . .	–.091	–0.80	. . .	. . .
33	ξ Navis.	7 44 52.691	–24 35 48.03	94.62	. . .	. . .	–.14	–0.7	–.009	–0.51	. . .	. . .

TABLE XVI.—OBSERVED PLACES OF STARS NOT IN B. J. EPHEMERIS COMPARISON.

No.	Star.	R. A. 1895.0.	Decl. 1895.0.	Epoch	Obs. – A. E.		Obs. – C. T.		Obs. – N. A.		Obs. – 303.	
		h m s	° ′ ″		*s*	″	*s*	″	*s*	″	*s*	″
34	9 Navis	7 46 54.563	−13 37 10.89	'94.60	. .	. .	+.02	−0.7	. .	. .	−.002	−0.73
35	φ Geminorum	7 47 4.281	+27 2 14.41	94.68	−.041	−0.17	. .	. .	. .	. .	. .	. .
36	B. A. C. 2320	7 52 30.631	+88 56 47.43	95.31	. .	. .	+4.20	0.0	. .	. .	. .	. .
37	ω 1 Cancri	7 54 34.695	+25 40 48.07	94.65	−.041	−0.36	. .	. .	. .	. .	. .	. .
167	ζ Argus	7 59 53.596	−39 42 28.14	95.58	. .	. .	. .	. .	−.069	(−2.05)	. .	. .
38	3 Urs. Maj.	8 2 21.674	+68 46 58.04	94.66	−.383	+0.39	. .	. .	. .	. .	. .	. .
39	ζ Cancri pr.	8 6 11.409	+17 57 50.75	94.66	−.018	+1.64	. .	. .	. .	. .	. .	. .
41	δ Hydrae	8 32 5.846	+ 6 4 10.95	94.63	. .	. .	+.05	+0.4	. .	. .	. .	. .
42	σ Hydrae	8 33 16.186	+ 3 42 35.54	94.68	−.128	+0.15	. .	. .	. .	. .	. .	. .
43	γ Cancri	8 37 12.607	+21 50 45.18	94.63	−.028	+0.11	. .	. .	−.003	+0.09	. .	. .
44	α Pyxis	8 39 22.429	−32 48 29.88	94.68	. .	. .	−.10	+1.3	. .	. .	. .	. .
45	B. A. C. 3097	8 59 51.067	+38 52 18.02	94.66	. .	. .	−.18	+1.1	. .	. .	. .	. .
46	κ Cancri	9 2 3.595	+11 5 26.00	94.66	−.073	−0.37	−.08	−0.6	+.009	+0.10	. .	. .
143	ψ Argus	9 26 33.857	−40 0 26.63	95.60	. .	. .	−.07	−0.5	. .	. .	. .	. .
47	υ 2 Hydrae	10 0 0.691	−12 33 20.64	94.70	. .	. .	−.08	−2.8	. .	. .	+.009	−0.94
48	32 Urs. Maj.	10 10 24.498	+65 37 54.91	94.75	−.039	+0.30	. .	. .	. .	. .	. .	. .
49	γ 1 Leonis	10 14 11.026	+20 22 21.48	94.73	−.011	+0.14	+.06	+0.2	+.012	+0.67	. .	. .
145	B. A. C. 3495	10 14 21.636	+84 47 7.20	95.42	. .	. .	+.28	+2.1	. .	. .	. .	. .
50	37 Sextantis	10 40 37.672	+ 6 55 35.72	94.75	. .	. .	+.01	+0.7	. .	. .	. .	. .
147	α Crateris	10 54 39.459	−17 44 23.18	95.74	. .	. .	−.01	−1.0	. .	. .	. .	. .
51	d Leonis	10 55 8.272	+ 4 10 52.40	94.77	. .	. .	. .	. .	+.036	+0.29	. .	. .
52	p 3 Leonis	11 1 32.906	+ 2 31 31.52	94.77	+.140	−0.08	. .	. .	. .	. .	. .	. .
53	83 Leonis	11 21 26.458	+ 3 35 7.01	94.76	. .	. .	+.10	+0.6	. .	. .	. .	. .
54	τ Leonis	11 22 32.247	+ 3 26 4.19	94.77	+.003	+0.24	. .	. .	+.026	+0.29	. .	. .
148	ζ Crateris	11 39 26.443	−17 46 1.67	95.78	. .	. .	+.05	−0.9	. .	. .	+.048	−0.99
55	Groom. 1830	11 46 55.559	+38 28 20.31	94.79	. .	. .	−.03	−2.1	. .	. .	. .	. .
56	π Virginis	11 55 29.528	+ 7 11 59.38	94.79	+.024	+0.72	+.05	+0.6	+.041	0.00	. .	. .
57	6 Urs. Min.	12 14 21.978	+88 16 55.16	95.03	+.665	−0.55	+2.01	+0.1	. .	. .	. .	. .
58	23 Com. Ber.	12 29 37.130	+23 12 26.96	94.75	. .	. .	(−.52)	+0.5	. .	. .	. .	. .
59	f Virginis	12 31 22.841	− 5 15 11.44	94.79	. .	. .	−.02	+1.8	. .	. .	. .	. .
60	31 Com. Ber.	12 46 35.012	+28 6 43.94	94.75	−.163	+0.96	. .	. .	. .	. .	. .	. .
149	η Centauri	12 47 37.228	−39 36 29.31	95.78	. .	. .	+.07	−1.0	. .	. .	. .	. .
61	32 H. Cam. 2	12 48 20.948	+83 59 1.51	95.04	−.507	+0.72	. .	. .	. .	. .	. .	. .
62	61 Virginis	13 12 54.706	−17 43 38.10	94.79	. .	. .	−.06	−1.2	. .	. .	. .	. .
211	ι Centauri	13 14 41.589	−36 9 31.39	95.80	. .	. .	. .	. .	+.002	−1.94	. .	. .
63	25 Canis Ven.	13 32 47.730	+36 49 44.46	94.81	. .	. .	−.21	+0.4	. .	. .	. .	. .
64	m Virginis	13 36 6.009	− 8 10 23.54	94.82	−.027	−0.55	+.04	+0.3	. .	. .	−.003	−0.87
65	π Hydrae	14 0 23.446	−26 10 35.33	94.84	+.029	(−3.18)	. .	. .	+.030	−0.46	. .	. .
66	9 Centauri	14 0 30.139	−35 51 12.17	94.90	. .	. .	−.14	+3.7	+.005	−1.21	. .	. .
67	λ Virginis	14 13 25.624	−12 53 15.84	94.86	−.035	+0.14	−.04	−0.6	. .	. .	. .	. .
68	f Boötis	14 21 34.278	+19 41 56.58	94.84	. .	. .	. .	. .	−.028	+0.13	. .	. .
69	5 Urs. Min.	14 27 44.746	+76 9 46.29	95.04	−.120	+0.50	. .	. .	. .	. .	. .	. .
70	ε 2 Boötis	14 40 24.012	+27 31 1.26	94.86	−.137	+0.49	−.02	0.0	−.042	+0.38	. .	. .
71	ξ 2 Librae	14 51 4.172	−10 59 8.89	94.87	. .	. .	+.02	−0.1	. .	. .	+.006	−0.57
72	Piazzi 212	14 51 20.020	−20 56 29.73	94.86	. .	. .	+.24	−2.2	. .	. .	. .	. .
73	Groom. 2283	15 11 3.849	+87 38 11.52	95.10	. .	. .	−2.47	−1.8	. .	. .	. .	. .
74	η Coronae	15 18 51.972	+30 40 1.45	94.83	. .	. .	−.01	+0.1	. .	. .	. .	. .
75	ζ 1 Librae	15 22 20.030	−16 21 0.98	94.90	. .	. .	−.03	0.0	. .	. .	+.020	−0.39
76	κ Librae	15 35 53.767	−19 20 18.06	94.90	. .	. .	+.04	−0.9	. .	. .	. .	. .
77	λ Librae	15 47 14.283	−19 51 10.74	94.91	. .	. .	+.02	−0.9	. .	. .	. .	. .
216	π Scorpii	15 52 29.950	−25 48 41.76	95.91	. .	. .	. .	. .	+.091	−0.23	. .	. .
78	49 Librae	15 54 25.998	−16 13 25.96	94.91	. .	. .	−.07	−0.9	. .	. .	. .	. .
79	ν 2 Scorpii	16 5 53.535	−19 11 15.53	94.90	. .	. .	−.01	−0.7	. .	. .	. .	. .
80	Groom. 2320	16 6 2.100	+68 5 12.20	94.94	+.211	−0.45	. .	. .	. .	. .	. .	. .
81	σ 1 Cor. Bor.*	16 10 44.573	+34 7 25.21	94.91	(−.05)	(−2.79)	+.14	+0.5	. .	. .	. .	. .

* σ 1 Cor. Bor. A. E. (Mean); C. T. brighter N. fol. star.

TABLE XVI.—OBSERVED PLACES OF STARS NOT IN B. J. EPHEMERIS COMPARISON.

No.	Star.	R. A. 1895.0.	Decl. 1895.0.	Epoch	Obs. – A. E.	Obs. – C. T.	Obs. – N. A.	Obs. – 303.
		h m s	° ′ ″		s ″	s ″	s ″	s ″
82	σ Scorpii	16 14 48.331	−25 20 26.29	'94.94	. . . .	+.01 −1.6	+.070 −1.02	. . . .
83	τ Scorpii	16 29 20.720	−27 59 52.66	94.94	. . . .	+.01 −1.3	+.067 −0.23	. . . .
84	ε Scorpii	16 43 21.725	−34 6 8.87	94.92	. . . .	+.02 +3.0	+.011 −1.23	. . . .
85	d Herculis	16 57 43.755	+33 43 13.26	94.94	+.014 −0.27	. . . .	. . . .	. . . .
86	A 1 Ophiuchi	17 8 53.413	−26 26 54.21	94.94	. . . .	−.01 +0.9	. . . .	. . . .
87	ω Herculis	17 16 43.808	+32 36 10.81	94.91	. . . .	+.03 −0.7	. . . .	. . . .
88	b Ophiuchi	17 19 57.435	−24 4 42.66	95.01	−.002 −0.22	. . . .	. . . .	. . . .
89	d Ophiuchi	17 20 38.964	−29 46 18.01	95.04	. . . .	+.17 +1.7	. . . .	. . . .
90	σ Ophiuchi	17 21 18.259	+ 4 13 54.42	94.92	. . . .	. . . .	+.032 +0.13	. . . .
217	υ Scorpii	17 23 37.500	−37 12 42.41	95.92	. . . .	. . . .	+.087 −0.92	. . . .
219	λ Scorpii	17 26 28.662	−37 1 36.90	96.01	. . . .	. . . .	−.011 −0.65	. . . .
153	κ Scorpii	17 35 13.397	−38 58 32.47	95.92	. . . .	+.01 −3.0	−.069 −1.57	. . . .
155	γ 2 Sagittarii*	17 59 3.720	−30 25 30.31	96.00	−.019 +0.57	−.03 +0.2	+.040 −0.42	. . . .
91	p 1 Ophiuchi	18 0 8.981	+ 2 31 26.67	95.04	. . . .	+.28 −0.7	. . . .	. . . .
220	η Sagittarii	18 10 31.337	−36 47 35.00	95.99	. . . .	. . . .	−.001 −2.24	. . . .
92	δ Sagittarii	18 14 16.304	−29 52 20.66	95.04	. . . .	+.11 +0.8	+.038 −0.01	. . . .
93	ε Sagittarii	18 17 12.125	−34 26 1.96	95.02	. . . .	.00 +3.9	−.035 +0.17	. . . .
94	λ Sagittarii	18 21 29.426	−25 28 46.05	95.04	−.005 +0.99	. . . .	+.024 +0.39	. . . .
95	I Aquilae	18 29 29.568	− 8 19 2.21	95.04	−.027 +0.48	. . . .	. . . .	. . . .
156	φ Sagittarii	18 39 5.786	−27 5 53.94	96.01	. . . .	+.05 +0.3	+.052 +0.60	. . . .
96	50 Draconis	18 49 45.634	+75 18 36.40	95.24	+.126 +0.28	. . . .	. . . .	. . . .
222	ξ 2 Sagittarii	18 51 27.938	−21 14 40.11	96.00	. . . .	. . . .	+.018 −0.77	. . . .
97	ζ Sagittarii	18 55 55.890	−30 1 47.61	95.03	. . . .	+.13 +1.2	+.083 −0.47	. . . .
223	τ Sagittarii	19 0 23.082	−27 49 25.37	96.01	. . . .	. . . .	+.040 −0.27	. . . .
98	d Sagittarii	19 11 29.500	−19 8 22.78	95.04	+.014 −0.44	. . . .	. . . .	+.020 −1.00
99	b Aquilae	19 19 57.765	+11 43 11.39	95.04	. . . .	−.16 −3.0	. . . .	. . . .
100	κ Aquilae	19 31 14.561	− 7 15 38.83	95.04	+.013 −0.39	+.01 −0.9	. . . .	+.005 −0.64
101	β Sagittarii	19 36 19.959	+17 13 58.44	95.04	−.034 +0.61	. . . .	. . . .	. . . .
102	c Sagittarii	19 56 12.156	−28 0 5.79	94.84	+.014 −0.64	+.11 −0.4	. . . .	. . . .
103	τ Aquilae	19 59 0.599	+ 6 58 54.68	94.83	−.096 +0.67	. . . .	. . . .	. . . .
104	π Capricorni	20 21 18.675	−18 33 21.30	94.88	−.033 −0.40	. . . .	. . . .	. . . .
105	Groom. 3241	20 30 27.662	+72 10 33.19	95.23	+.112 −0.25	. . . .	. . . .	. . . .
106	ψ Capricorni	20 39 52.744	−25 38 53.35	94.88	−.004 −0.34	+.05 0.0	. . . .	. . . .
107	3 Aquarii	20 42 11.841	− 5 24 43.47	94.86	. . . .	+.10 −0.7	. . . .	. . . .
108	μ Aquarii	20 46 59.444	− 9 22 37.63	94.88	−.009 +0.53	+.06 −0.4	. . . .	. . . .
159	ζ Microscop.	20 56 15.425	−39 2 29.54	95.65	. . . .	+.09 −2.1	. . . .	. . . .
109	ϑ Capricorni	21 0 2.722	−17 39 0.16	94.88	. . . .	. . . .	+.061 +0.21	. . . .
160	4 Piscium Aus.	21 11 34.314	−32 36 40.76	95.65	. . . .	+.11 −0.3	. . . .	. . . .
110	σ Cygni	21 13 17.455	+38 57 16.40	94.88	. . . .	+.06 +0.2	. . . .	. . . .
111	Groom. 3548	21 20 31.984	+86 36 7.73	95.22	. . . .	−.66 −0.3	. . . .	. . . .
112	ξ Aquarii	21 32 9.761	− 8 19 30.18	94.86	−.018 0.00	. . . .	. . . .	. . . .
161	γ Grus	21 47 34.305	−37 51 31.83	95.23	. . . .	+.07 −1.1	+.095 −0.48	. . . .
113	μ Capricorni	21 47 34.323	−14 2 45.41	94.86	+.020 +0.23	. . . .	. . . .	. . . .
114	79 Draconis	21 51 33.224	+73 12 20.15	95.24	−.053 +0.01	. . . .	. . . .	. . . .
116	π Aquarii	22 19 54.873	+ 0 50 40.42	94.26	−.028 −0.17	. . . .	. . . .	. . . .
117	σ Aquarii	22 25 5.482	−11 12 55.07	94.27	+.075 −0.41	. . . .	. . . .	+.036 −0.48
118	226 Cephei	22 30 25.620	+75 41 7.26	95.00	−.298 +0.25	. . . .	. . . .	. . . .
119	φ Aquarii	23 8 53.062	− 6 36 54.23	94.26	−.039 −0.49	. . . .	. . . .	. . . .
163	γ Sculptoris	23 13 9.294	−33 6 15.18	95.25	. . . .	+.08 −1.5	. . . .	. . . .
120	o Cephei	23 14 18.696	+67 32 13.14	94.28	−.187 −0.44	. . . .	. . . .	. . . .

*Obs.—B. J., −s.047 +1.″04. Error of 1 min. C. T.

TABLE XVI.—OBSERVED PLACES OF STARS NOT IN B. J. EPHEMERIS COMPARISON.

No.	Star.	R. A. 1895.0.	Decl. 1895.0.	Epoch	Obs. – A. E.		Obs. – C. T.		Obs. – N. A.		Obs. – 303.	
		h m s	° ′ ″		*s*	″	*s*	″	*s*	″	*s*	″
121	9 Piscium	23 22 38.493	+ 5 48 8.13	'94.28	–.001	+0.59	. . .	. . .	. . .	. . .	. . .	. . .
164	β Sculptoris	23 27 20.472	–38 23 57.07	95.25	. . .	. . .	+.06	–0.7	. . .	. . .	. . .	. . .
122	39 H. Cephei	23 27 49.042	+86 43 41.93	95.01	. . .	. . .	–.27	+1.8	. . .	. . .	. . .	. . .
123	i 1 Aquarii	23 38 45.373	–18 51 35.08	94.29	–.010	–0.43	. . .	. . .	. . .	. . .	. . .	. . .
124	Groom. 4163	23 49 43.260	+73 49 33.82	95.01	–.289	+0.34	. . .	. . .	. . .	. . .	. . .	. . .
125	30 Piscium	23 56 34.512	– 6 35 51.72	94.27	. . .	. . .	+.09	–0.2	. . .	. . .	. . .	. . .
126	2 Ceti	23 58 21.643	–17 55 14.55	94.30	. . .	. . .	+.06	–1.5	. . .	. . .	–.005	–0.76
127	33 Piscium	23 59 57.635	– 6 17 42.22	94.32	–.032	–0.75	. . .	. . .	. . .	. . .	. . .	. . .

Mean Δ (The Δα has been divided by Sec. δ for the means, and for the residuals).

Obs. – A. E., 67 stars, –ˢ.028 +0″.02
v ±.037 ±.20
Obs. – C. T., 86 stars, +ˢ.016 –0″.24
v ±.06 ±1.0
Obs. – N. A., 19 stars, +ˢ.008 +0″.02
v ±.030 ±.31
Obs. – N. A. '97, 25 stars, +.025 –0.71
v ±.031 ±.52
Obs. – 303, 11 stars, +ˢ.013 –0″.75
v ±.013 ±.17

In the above results, there are possibly other individual comparisons, that should have been rejected, in making up the means. But, as the material is not very extensive, a conservative course has been adopted, and but four comparisons, from a total of over 200, have been excluded: One Δδ A. E, one Δα C. T., one Δδ N. A., one Δα N. A. ('97).

The observed corrections, to the various Ephemerides, may here be compared with the *Ephemeris differences*, for the fundamental stars:

Table I.—Fundamental Stars.			Table XVI.—Stars not in B. J.		
B. J.—A. E.	—ˢ.026	+0″.05	Obs.—A. E.	—ˢ.028	+0″.02
B. J.—C. T.	+.015	—0.22	Obs.—C. T.	+.016	—0.24
B. J.—N. A.	+.021	+0.18	Obs.—N. A.	+.008	+0.02
B. J.—303	.000	—0.51	Obs.—303	+.013	—0.75

The evidence is conclusive of the consistency of each system with its zone of Equatorial stars; and also of the extension, by these observations, of the B. J. system at the Equator, to the limits included: the pole, and 40° South Declination.

The variation between B. J. and 303, in Declination, is in accord with the accepted deviation of the two systems, given in the list of 303 stars, at the close of the Jahrbuch.

The results will now be combined in groups of 2 hours, and of 6 hours, according to the amount of material. In Table XVII the means of the groups are taken, without respect to the number of stars in each.

TABLE XVII.—PLACES OF STARS NOT IN B. J. EPHEMERIS COMPARISON.

Groups of 2 Hours R. A.										Groups of 6 Hours R. A.				
No.	R.A.	Decl.	Obs. – A. E.		No.	R.A.	Decl.	Obs. – C. T.		No.	R.A.	Decl.	Obs. – N. A.	
	h	°	*s*	"		*h*	°	*s*	"		*h*	°	*s*	"
6	1.0	+27	–.036 sec. δ	–0.30	6	0.7	+ 7	+.125 sec. δ	+0.05	3	4.1	+ 1	–.005 sec. δ	–0.25
5	3.0	+17	–.046 "	+ .12	4	2.8	– 7	+.035 "	+ .47	9	9.3	– 3	+.016 "	+ .10
6	5.1	+26	–.054 "	– .16	8	5.1	–12	–.056 "	– .29	4	15.1	+ 2	–.007 "	– .14
4	7.2	+39	–.050 "	– .28	5	7.5	+ 8	–.024 "	–1.30	3	19.2	–26	+.016 "	+ .26
5	8.5	+24	–.076 "	+ .39	5	8.9	– 3	–.060 "	+ .34					
5	11.0	+20	+.028 "	+ .26	9	11.0	–15	+.020 "	– .29				+.005 sec. δ	–0.01
4	12.9	+48	–.050 "	+ .14	7	12.9	+11	–.015 "	+ .13				*Obs. – N. A. '97.*	
4	14.4	+16	–.039 "	+ .38	11	15.1	– 1	–.006 "	– .33					
4	17.0	+12	+.018 "	– .09	10	16.9	–16	+.013 "	– .49	3	5.0	–28	+.026 sec. δ	–0.45
8	19.2	+ 4	–.011 "	+ .19	8	18.9	–18	+.061 "	+ .15	4	7.1	–29	–.009 "	– .84
7	21.0	+10	–.024 "	– .03	8	21.1	– 3	+.051 "	– .59	10	16.3	–32	+.028 "	– .87
9	23.1	+20	–.032 "	– .17	5	23.6	– 2	+.050 "	– .42	7	19.1	–30	+.039 "	– .52
Means . . .			–.031 sec. δ	+0.04				+.016 sec. δ	–0.21				+.021 sec. δ	–0.67
	v . .		±.023 "	± .21				±.04 "	±0.4					
Reduced to 6-Hour Groups.														
No.	R.A.	Decl.	Obs. – A. E.		No.	R.A.	Decl.	Obs. – C. T.		No.	R.A.	Decl.	Obs. – 303.	
	h	°	*s*	"		*h*	°	*s*	"		*h*	°	*s*	"
17	3.0	+24	–.046 sec. δ	–0.13	18	3.1	– 4	+.024 sec. δ	–0.01	1	2.9	–24	+.011 sec. δ	–0.91
14	9.0	+27	–.031 "	+ .15	19	9.6	– 6	–.013 "	– .39	3	9.8	–14	+.018 "	– .89
12	14.8	+25	–.024 "	+ .14	28	15.2	– 3	–.001 "	– .27	3	14.6	–12	+.008 "	– .61
24	21.1	+11	–.023 "	.00	21	21.0	– 8	+.054 "	– .27	4	21.2	–14	+.014 "	– .72
Means . . .			–.031 sec. δ	+0.04				+.016 sec. δ	–0.23				+.013 sec. δ	–0.78

These mean results exhibit the effect of systematic differences, in Declination, depending upon the Right Ascension. The differences may be represented by the following expressions, for the respective corrections to the Ephemerides:

Obs.—A. E.	=	+".04	—".04 sin α	—".14 cos α
Obs.—C. T.	=	— .23	+ .05 sin α	+ .14 cos α
Obs.—N. A.	=	— .01	— .10 sin α	+ .02 cos α
Obs.—N. A. '97	=	— .67	+ .04 sin α	+ .26 cos α
Obs.—303	=	— .78	— .17 sin α	— .05 cos α

The use of the above expression, for A. E., reduces the average residual v, for a group, in the 2-hour series, from ±0".21, to, (Obs.—Comp.) ±0".16.

In general the cosine term appears the most important; but the agreement among the various authorities is not close. If the correction to the B. J. system is desired, the signs, above, will be reversed.

TABLE XVIII. The results of the comparison of observations, with the Ephemerides, are arranged in this table in order of Declination. The stars will be easily identified by the current number, and the approximate place, given in the first columns.

Comparisons with A. E. extend from close Circumpolar stars, to below 30° South; three quarters of the stars being North of the Equator. With C. T. they extend to 40° South, one third being North of the Equator. With N. A. there are comparatively few, widely distributed comparisons; while for N. A. '97 and 303, the stars are South, with but one exception. The average Declination is given at the foot of the table, for the stars included from each Ephemeris.

TABLE XVIII.—COMPARISON OF OBSERVED PLACES WITH EPHEMERIDES. STARS NOT IN B. J. ARRANGED IN ORDER OF DECLINATION.

No.	R. A.	Decl.	Obs. – A. E.			Obs. – C. T.			Obs. – N. A.	
	h	°	*s*	*s*	"	*s*	*s*	"	*s*	"
36	7.9	+88.9	....	....	....	+4.20	+.076 sec. δ	0.0	....	....
57	12.2	88.3	+.665	+.020 sec. δ	−0.55	+2.01	+.060	+0.1	....	....
73	15.2	87.6	....	....	....	−2.47	−.099	−1.8	....	....
122	23.5	86.7	....	....	....	−0.27	−.016	+1.8	....	....
111	21.3	86.6	....	....	....	−0.66	−.040	−0.3	....	....
26	5.5	85.1	−.722	−.061	−0.62	....	....	....	....	....
145	10.2	84.8	....	....	....	+0.28	+.025	+2.1	....	....
61	12.8	84.0	−.507	−.051	+0.72	....	....	....	....	....
32	7.1	82.6	−.825	−.106	−0.77	....	....	....	....	....
69	14.5	76.2	−.120	−.030	+0.50	....	....	....	....	....
118	22.5	75.7	−.298	−.074	+0.25	....	..	....	....	....
96	18.8	75.3	+.126	+.032	+0.28	....	....	....	....	....
124	23.8	73.8	−.289	−.077	+0.34	....	....	....	....	....
114	21.9	73.2	−.053	−.015	+0.01	....	....	....	....	....
105	20.5	72.2	+.112	+.034	−0.25	....	....	....	....	....
10	1.4	69.7	+.024	+.008	+0.06	....	....	....	....	....
38	8.0	68.8	−.383	−.136	+0.39	....	....	....	....	....
80	16.1	68.1	+.211	+.078	−0.45	....	..	....	....	....
120	23.2	67.5	−.187	−.071	−0.44	....	....	....	....	....
48	10.2	65.6	−.039	−.016	+0.30	....	....	....	....	....
8	1.0	54.4	....	....	....	−0.03	−.017	−1.0	....	....
20	4.4	42.8	−.054	−.040	+0.66	....	....	....	....	....
11	1.5	40.9	−.098	−.074	−0.73	....	....	....	....	....
7	0.7	40.5	....	....	....	+.20	+.154	−0.5	....	..
24	5.2	40.0	....	....	....	.00	.000	−0.9	....	....
45	9.0	38.9	....	....	....	−.18	....	+1.1	....	....
110	21.2	38.9	....	....	....	+.06	....	+0.2	....	....
55	11.8	38.5	....	....	....	−.03	....	−2.1	....	....
63	13.5	36.8	....	....	....	−.21	....	+0.4	....	....
1	0.2	36.2	−.121	....	+0.40	....	....	....	....	....
81	16.2	34.1	(−.05)	....	(−2.79)	+.14	....	+0.5	....	....
85	16.9	33.7	+.014	....	−0.27	....	....	....	....	....
87	17.3	32.6	...	....	....	+.03	....	−0.7	....	....
25	5.4	32.1	−.132	....	−1.38	....	....	....	....	....
74	15.3	30.7	....	....	....	−.01	....	+0.1	....	....
31	6.9	29.5	.. .	....	....	−.09	....	−3.6	....	....
60	12.8	28.1	−.163	....	+0.96	....	....	....	....	....
70	14.7	27.5	−.137	....	+0.49	−.02	....	0.0	−0.42	+0.38
35	7.8	27.0	−.041	....	−0.17	....	....	....	...	.. .
37	7.9	25.7	−.041	....	−0.36	....	....	....	....	....
58	12.5	23.2	....	....	....	(−.52)	....	+0.5	. ..	....
18	4.0	21.8	−.068	....	+0.88	....	....	....	−.009	−0.18
43	8.6	21.8	−.028	....	+0.11	....	....	....	−.003	+0.09
16	2.9	20.9	−.055	....	−0.58	−.04	....	−0.6	....	....
17	3.1	20.7	−.043	....	+0.08	....	....	....	....	....
49	10.2	20.4	−.011	....	+0.14	+.06	....	+0.2	+.012	+0.67
30	6.4	20.3	−.025	....	+0.24	....	....	....	....	....
68	14.4	19.7	....	....	....	....	....	....	−.028	+0.13
22	4.8	18.7	−.036	....	+0.54	....	....	....	....	....
39	8.1	17.9	−.018	....	+1.64	....	....	....	....	. . .
101	19.6	17.2	−.034	....	+0.61	....	....	....	...	....
23	5.0	15.3	−.010	....	−0.07	....	...	....	...	....
15	2.8	14.6	−.012	....	+0.38	....	....	....	+.055	+0.15
99	19.3	11.7	....	....	....	−.16	....	−3.0	....	....
12	1.5	11.6	−.064	....	−1.24	. ..	....	....	....	. ..
46	9.0	11.1	−.073	....	−0.37	−.08	. ..	−0.6	+.009	+0.10

TABLE XVIII.—COMPARISON OF OBSERVED PLACES WITH EPHEMERIDES. STARS NOT IN B. J.

No.	R. A.	Decl.	Obs. – A. E.		Obs. – C. T.		Obs. – N. A.		1897.		Obs. – 303.	
	h	°	s	"	s	"	s	"	s	"	s	"
13	2.1	+8.4	–.064	–0.14	....	....	....	....	....	....	....	....
56	11.9	7.2	+.024	+0.72	+.05	+0.6	+.041	0.00	....	....	....	....
50	10.7	6.9	....	....	+.01	+0.7	....	....	....	....	....	....
103	20.0	6.9	–.096	+0.67	....	....	....	....	....	....	....	....
21	4.7	6.8	....	....	–.13	+0.3	....	....	(+.081)	(+1.58)	....	....
14	2.5	6.4	....	....	+.12	+4.0	....	....	....	....	....	....
41	8.5	6.1	....	....	+.05	+0.4	....	....	....	....	....	....
121	23.4	5.8	–.001	+0.59	....	....	....	....	....	....	....	....
6	0.7	4.7	....	....	+.38	+1.3	....	....	....	....	....	....
51	10.9	4.2	....	....	....	....	+.036	+0.29	....	....	....	....
90	17.4	4.2	....	....	....	....	+.032	+0.13	....	....	....	....
42	8.6	3.7	–.128	+0.15	....	....	....	....	....	....	....	....
53	11.4	3.6	....	....	+.10	+0.6	....	....	....	....	....	....
54	11.4	3.4	+.003	+0.24	....	....	+.026	+0.29	....	....	....	....
9	1.2	3.1	–.004	+0.01	....	....	....	....	....	....	....	....
52	11.0	2.5	+.140	–0.08	....	....	....	....	....	....	....	....
91	18.0	2.5	....	....	+.28	–0.7	....	....	....	....	....	....
2	0.3	1.4	+.014	–0.28	....	....	....	....	....	....	....	....
116	22.3	+0.8	–.028	–0.17	....	....	....	....	....	....	....	....
27	5.6	–2.0	....	....	–.07	+0.4	....	....	....	....	....	....
4	0.5	4.2	....	....	+.13	–0.1	....	....	....	....	....	....
59	12.5	5.3	....	....	–.02	+1.8	....	....	....	....	....	....
107	20.7	5.4	....	....	+.10	–0.7	....	....	....	....	....	....
127	23.9	6.3	–.032	–0.75	....	....	....	....	....	....	....	....
119	23.1	6.6	–.039	–0.49	....	....	....	....	....	....	....	....
125	23.9	6.6	....	....	+.09	–0.2	....	....	....	....	....	....
100	19.5	7.3	+.013	–0.39	+.01	–0.9	....	....	....	....	+.005	–0.64
19	4.2	7.8	....	....	–.15	–0.2	....	....	....	....	....	....
64	13.6	8.2	–.027	–0.55	+.04	+0.3	....	....	....	....	–.003	–0.87
95	18.5	8.3	–.027	+0.48	....	....	....	....	....	....	....	....
112	21.5	8.3	–.018	0.00	....	....	....	....	....	....	....	....
108	20.8	–9.4	–.009	+0.53	+.06	–0.4	....	....	....	....	....	....
71	14.9	–11.0	....	....	+.02	–0.1	....	....	....	....	+.006	–0.57
117	22.4	11.2	+.073	–0.41	....	....	....	....	....	....	+.034	–0.48
47	10.0	12.6	....	....	–.08	–2.8	....	....	....	....	+.009	–0.94
67	14.2	12.9	–.035	+0.14	–.04	–0.6	....	....	....	....	....	....
34	7.8	13.6	....	....	+.02	–0.7	....	....	....	....	–.002	–0.73
113	21.8	14.0	+.020	+0.23	....	....	....	....	....	....	....	....
78	15.9	16.2	....	....	–.07	–0.9	....	....	....	....	....	....
203	5.1	16.3	....	....	....	....	....	....	+.021	+0.09	....	....
75	15.4	16.4	....	....	–.03	0.0	....	....	....	....	+.020	–0.39
109	21.0	17.7	....	....	....	....	+.061	+0.21	....	....	....	....
147	10.9	17.7	....	....	–.01	–1.0	....	....	....	....	....	....
62	13.2	17.7	....	....	–.06	–1.2	....	....	....	....	....	....
148	11.7	17.8	....	....	+.05	–0.9	....	....	....	....	+.048	–1.00
126	23.9	17.9	....	....	+.06	–1.5	....	....	....	....	–.004	–0.76
104	20.4	18.6	–.033	–0.40	....	....	....	....	....	....	....	....
123	23.6	18.9	–.010	–0.43	....	....	....	....	....	....	....	....
98	19.2	19.1	+.014	–0.44	....	....	....	....	....	....	+.020	–1.00
79	16.1	19.2	....	....	–.01	–0.7	....	....	....	....	....	....
76	15.6	19.3	....	....	+.04	–0.9	....	....	....	....	....	....
77	15.8	–19.9	....	....	+.02	–0.9	....	....	....	....	....	....

TABLE XVIII.—COMPARISON OF OBSERVED PLACES WITH EPHEMERIDES. STARS NOT IN B. J.

No.	R. A.	Decl.	Obs. – A. E.		Obs. – C. T.		Obs. – N. A.		1897.		Obs. – 303.	
	h	°	*s*	"	*s*	"	*s*	"	*s*	"	*s*	"
72	14.9	– 20.9	....	....	+.24	– 2.2	....	....	....	....	....	....
222	18.9	21.2	....	....	....	....	....	....	+.018	– 0.77	....	....
207	6.9	23.7	....	....	....	....	....	....	– .023	+ 0.05	....	....
133	2.9	24.0	....	....	+.07	– 0.9	....	....	....	....	+.012	– 0.91
88	17.3	24.1	– .002	– 0.22	....	....	....	....	....	....	....	....
33	7.7	24.6	....	....	– .14	– 0.7	– .008	– 0.51	....	....	....	....
5	0.5	25.3	....	....	+.07	+ 1.2	....	....	....	....	....	....
82	16.2	25.3	....	....	+.01	– 1.6	....	....	+.060	– 1.02	....	....
94	18.4	25.5	– .005	+ 0.99	....	....	+.024	+ 0.39	....	....	....	....
106	20.7	25.6	– .004	– 0.34	+.05	0.0	....	....	....	....	....	....
216	15.9	25.8	....	....	....	....	....	....	+.091	– 0.23	....	....
*65	14.0	26.2	+.029	(– 3.18)	....	....	....	....	+.030	– 0.46	....	....
86	17.1	26.4	....	....	– .01	+ 0.9	....	....	....	....	....	....
156	18.7	27.1	....	....	+.05	+ 0.3	....	....	+.052	+ 0.60	....	....
206	6.9	27.8	....	....	....	....	....	....	+.067	– 0.84	....	....
223	19.0	27.8	....	....	....	....	....	....	+.040	– 0.27	....	....
83	16.5	28.0	....	....	+.01	– 1.3	....	....	+.067	– 0.23	....	....
102	19.9	28.0	+.014	– 0.64	+.11	– 0.4	....	....	....	....	....	....
208	7.3	29.1	....	....	....	....	....	....	– .091	– 0.80	....	....
89	17.3	29.8	....	....	+.17	+ 1.7	....	....	....	....	....	....
92	18.2	29.9	....	....	+.11	+ 0.8	....	....	+.038	– 0.01	....	....
129	0.9	– 29.9	....	....	+.06	– 0.6	....	....	....	....	....	....
97	18.9	– 30.0	....	....	+.13	+ 1.2	....	....	+.083	– 0.47	....	....
166	6.3	30.1	....	....	....	....	+.094	– 0.02	....	....	....	....
155	18.0	30.4	– .019	+ 0.57	– .02	+ 0.2	....	....	+.040	– 0.42	....	....
160	21.2	32.6	....	....	+.11	– 0.3	....	....	....	....	....	....
132	2.7	32.8	....	....	.00	– 0.6	....	....	....	....	....	....
44	8.7	32.8	....	....	– .10	+ 1.3	....	....	....	....	....	....
163	23.2	33.1	....	....	+.08	– 1.5	....	....	....	....	....	....
202	4.2	34.1	....	....	....	....	....	....	(+.227)	– 0.96	....	....
28	5.6	34.1	– .083	– 0.10	– .16	– 0.7	– .072	– 0.73	....	....	....	....
84	16.7	34.1	....	....	+.02	+ 3.0	....	....	+.011	– 1.23	....	....
135	4.3	34.3	....	....	+.02	+ 0.2	....	....	....	....	....	....
93	18.3	34.4	....	....	.00	+ 3.9	– .035	+ 0.17	....	....	....	....
137	5.2	35.0	....	....	+.04	– 0.7	....	....	....	....	....	....
138	5.9	35.3	....	....	– .03	– 0.7	....	....	....	....	....	....
204	5.8	35.8	....	....	....	....	....	....	+.040	– 0.47	....	....
66	14.0	35.9	....	....	– .14	+ 3.7	+.005	– 1.21	....	....	....	....
211	13.2	36.2	....	....	....	....	....	....	+.002	– 1.94	....	....
220	18.2	36.8	....	....	....	....	....	....	– .001	– 2.24	....	....
141	7.2	36.9	....	....	– .03	– 1.5	....	....	+.005	– 1.77	....	....
219	17.4	37.0	....	....	....	....	....	....	– .011	– 0.65	....	....
217	17.4	37.2	....	....	....	....	....	....	+.087	– 0.92	....	....
161	21.8	37.9	....	....	+.07	– 1.1	....	....	+.095	– 0.48	....	....
164	23.5	38.4	....	....	+.06	– 0.7	....	....	....	....	....	....
153	17.6	38.9	....	....	.00	– 3.1	....	....	– .067	– 1.62	....	....
159	20.9	39.0	....	....	+.09	– 2.1	....	....	....	....	....	....
149	12.8	39.6	....	....	+.07	– 1.0	....	....	....	....	....	....
167	8.0	39.7	....	....	....	....	– .069	(– 2.05)	....	....	....	....
143	9.4	– 40.0	....	....	– .07	– 0.5	....	....	....	....	....	....

Average Declination, A. E., + 22° C. T., – 5° N. A., – 6° 1897, – 30° 303, – 14°

* N. A. '97 p. m., – 0".17. A. E., 0".00.

TABLE XIX. The material will better exhibit systematic differences, depending upon Declination, when combined into groups of 10°, as in the following table. The means of the groups have been taken without regard to the number of stars in each, and the residuals are taken out from these means.

In the comparisons with A. E. and C. T., there do not appear to be variations, uniform with respect to Declination. For N. A., the $\Delta\delta$ can be represented by the expression: (Obs.—N. A.) = +″.06 +″.010 per degree; and in place of the group residual ±0″.19, the values, computed, give the average: (Obs.—c.) ±0″.11. This rate is similar to that exhibited in the comparison of the Ephemeris places of Fundamental stars: Table IV.

The divergence, from N. A. 1897, is much more strongly marked.

For 303, there are combined, here, the observed corrections to the stars which occur in B. J., with those for stars which are not found there. There is an arc of 25° thus included. There results the expression: $\Delta\delta$ (Obs.—303) = —0″.40 +″.027 per degree. This is in fair accord with the accepted deviation, (—0″.50 +0″.02), AUWERS, and is therefore an indication that the present series of observations is an extension of the B. J. system, southwards. The 303 series is thus represented, with an average Δ (Obs.—comp.) ±0″.04; in place of the average residual, for the groups, ±0″.14.

TABLE XIX.—COMPARISON OF OBSERVED PLACES WITH EPHEMERIDES. 10° GROUPS.

No.	Decl.	$\Delta\alpha$ Obs. - A. E.	v	$\Delta\delta$	v
	°	s	s	″	″
4	85.0	-.347	-.049 sec. δ	-0.30	-0.28
6	74.4	-.087	-.022 "	+0.19	+0.21
5	67.9	-.074	-.029 "	-0.03	-0.01
..	....	....	....	....	....
2	41.8	-.076	-.057 "	-0.03	-0.01
3	34.0	-.080	-.065 "	-0.42	-0.40
10	23.4	-.060	-.055 "	+0.18	+0.20
7	15.2	-.035	-.034 "	+0.21	+0.23
10	+ 4.3	-.014	-.014 "	+0.17	+0.19
7	- 7.8	-.020	-.020 "	-0.17	-0.15
6	-15.8	+.005	+.005 "	-0.21	-0.19
5	-25.9	+.006	+.005 "	-0.05†	-0.03
2	-32.2	-.051	-.043 "	+0.23	+0.25
Means	.	. .	-.032 sec. δ	-0.02	±0.18

No.	Decl.	$\Delta\alpha$ Obs. - C. T.	v	$\Delta\delta$	v
	°	s	s	″	″
6	87.0	+.05	+.001 sec. δ	+0.3	+0.7
..	....	....	....	....	....
..	....	....	....	....	....
..	....	....	....	....	....
3	45.0	+.06	+.04 "	-0.8	-0.4
7	35.8	-.06	-.05 "	-0.6	-0.2
5	24.3	-.02†	-.02 "	-0.5	-0.1
2	11.4	-.12	-.12 "	-1.8	-1.4
8	+ 5.5	+.11	+.11 "	+0.9	+1.3
9	- 6.2	+.02	+.02 "	0.0	+0.4
13	-16.4	-.01	-.01 "	-0.9	-0.5
13	-26.5	+.06	+.05 "	-0.2	+0.2
20	-35.5	+.01	+.01 "	-0.1	+0.3
Means	.	. .	+.003 sec. δ	-0.37	±0.5

No.	Decl.	$\Delta\alpha$ Obs. - N. A.	v	$\Delta\delta$	v
	°	s	s	″	″
4	22.9	-.010	-.009 sec. δ	+0.24	+0.21
3	15.1	+.012	+.012 "	+0.13	+0.10
4	+ 4.7	+.034	+.034 "	+0.18	+0.15
..	....	....	....	....	....
..	....	....	....	....	....
3	-22.7	+.026	+.024 "	+0.03	0.00
5	-36.4	-.015	-.012 "	-0.45†	-0.48
Means	.	. .	+.010 sec. δ	+0.03	±0.19
*		*N. A. 1897.*		*N. A. 1897.*	
12	-25.7	+.031	+.028 sec. δ	-0.32	
12	-35.4	+.026	+.021 " †	-1.10	

No.	Decl.	$\Delta\alpha$ Obs. - 303	v	$\Delta\delta$	v
	°	s	s	″	″
17	+ 3.4	+.008	.... . . -.003	-0.26	+0.28
17	- 2.6	+.011	.... .000	-0.55	-0.01
16	- 8.1	+.012	.... +.001	-0.61	-0.07

The above results are from the 5° Groups of B. J. stars.

To these is added the comparison of 11 stars not in B. J. combined in one Group.

11	-14.1	+.013	.... +.002	-0.75	-0.21
Means	.	+.011 at -5°.3	±.002	-0.54	±0.14
				0. - c.	± .04

* One star at +6° omitted. † One star omitted.

TABLE XX. In this table are presented the details of the observation of Circumpolar stars, for the derivation of certain systematic corrections. The numbers, in the table, refer to the stars not in B. J.

The $\Delta\alpha$ (Obs.—B. J.), which is —^{s}.006 sec. δ for the mean of 32 stars observed at both culminations, (or —^{s}.009 sec. δ for the mean of all 45 B. J. stars,) may be ascribed either to errors of the B. J. Right Ascensions, or to systematic errors of observation. In the latter class, are to be included the reduction errors, such as those arising in the determination of instrumental constants. Since the values, derived from the two culminations, are the same, it may be concluded that there is no systematic error of observation, depending upon the direction of motion; and that there are no residual errors, due to the constants of reduction; unless these two sources of error balance in effect.

The $\Delta\alpha$ (U. C.—L. C.) includes all the Circumpolar stars, observed at both culminations, 47 in number. By comparison of the results at both culminations, the p. e. of one culmination in R. A. is found to be $\pm$^{s}.006 sec. δ; and the mean of both has, accordingly, p. e. $\pm$^{s}.004 sec. δ.

The $\Delta\delta$ (U. C.—L. C.) may be due either to errors of the B. J. system of Equatorial stars, used as fundamental; or to errors of observation, including bisection and refraction. The residuals, from the mean value of $\Delta\delta$, should indicate the effect of a term depending upon sine R. A., since the $\Delta\delta$ is made up of the *difference* of the systematic errors, in opposite quadrants. The mean value of $\Delta\delta$, derived from stars in all hours of Right Ascension, should be independent of a systematic error of that character. It can be accounted for, very closely, by the bisection error alone, which has been determined from an independent source. Adopting the bisection correction, there will remain no important error to be ascribed to refraction; and the residuals may be taken to represent the accidental errors of observation. The p. e. of a determination of $\Delta\delta$ is $\pm$0″.19; or, rejecting the residual of β Cephei (—0″.71), the p. e. is $\pm$0″.18. This would give for the p. e. of the mean of both culminations $\pm$0″.09, which is not larger than is to be anticipated. It may be divided pretty evenly between the probable error of graduation, and the accidental error of observation.

The $\Delta\varphi$, which has been taken out in the sense (U. C.—L. C.), represents the double error of the B. J. Declination, combined with error of observation. One half the $\Delta\varphi$ would be the *observed error* of the B. J. Declination. Reducing the half difference, for the effect of error of observation, the average error of B. J. Declination, for 32 circumpolars, would be slightly larger than $\pm$0″.2. The mean $\Delta\varphi$, (—0″.05), indicates a correction to B. J. of +0″.03, for the mean of the 32 stars.

The weights have been assigned, by giving:

Wt. 2 to stars observed in one position at each culmination;

Wt. 3 when one culmination is observed in both;

Wt. 4 when both culminations are observed in both positions.

Their use has not changed the mean results, essentially.

The column, headed φ, is the observed Latitude, from the mean of U. C. and L. C., without weights. The Latitude, thus derived, is free from errors of B. J. Declination. The residuals include the effect of *latitude variation*, and of errors of observation. The former will be discussed later, Tables XXIII to XXVIII. Its influence will be slight in the mean result, here given; and in the residuals, which may be ascribed mainly to errors of observation.

The mean Latitude, while free from error of Declinations, is directly affected by bisection error, which may be assumed to be the same at both culminations; and also by refraction error, operating in the same sense at both. These two considerations have influenced the adoption finally of a value of φ, for this series, obtained from both North and South stars of B. J.; as less likely to be affected by systematic error of determination, (Table XXIII).

TABLE XX.—SYSTEMATIC DIFFERENCES; FROM CIRCUMPOLAR OBSERVATIONS.

Star.	R. A.		Decl.	U. (Obs. - B. J.) L.		$\Delta\alpha$ (U.C. - L.C.)	$\Delta\delta$ (U.C. - L.C.)		$\Delta\varphi$	Wt.	φ ½(U+L)	
	h	*m*	°	*s*	*s*	*s*	"	*v* "	"		"	*v* "
21 Cass.	0	38	+74.4	+.005 sec. δ	-.007 sec. δ	+.012 sec. δ	+0.23	+0.03	+0.27	4	25.51	0.00
43 H. Cephei	0	54	85.7	-.008	+.004	-.012	- .06	- .26	+0.24	4	.57	+ .06
α Urs. Min.	1	20	88.7	-.019	.000	-.019	- .05	- .25	+0.26	4	.55	+ .04
50 Cass.	1	54	71.9	-.021	-.038	+.017	+ .63	+ .43	+1.00	3	.07	- .44
36 H. Cass.	2	28	72.4	-.062	-.052	-.010	+ .02	- .18	+0.22	3	.52	+ .01
5 H. Cam.	3	39	71.0	+.042	+.019	+.023	+ .01	- .19	-0.24	3	.72	+ .21
Gr. 750	4	3	85.3	.000	.000	.000	+ .19	- .01	-0.35	4	.60	+ .09
Gr. 848	4	34	75.7	-.025	-.013	-.012	+ .52	+ .32	+0.85	4	.39	- .12
Gr. 966	5	25	75.0	-.045	-.034	-.011	+ .58	+ .38	-1.36	3	.35	- .16
26	5	28	85.1	....	....	+.009	+ .21	+ .01	....	4	....	....
22 H. Cam.	6	7	69.4	-.005	+.013	-.018	+ .78	+ .58	+0.30	2	.22	- .29
23 H. Cam.	6	28	79.7	-.032	-.033	+.001	+ .59	+ .39	-1.16	3	.42	- .09
51 H. Cephei	6	51	87.2	-.029	-.035	+.006	+ .51	+ .31	0.00	4	.46	- .05
32	7	8	82.6	....	....	+.002	+ .33	+ .13	....	4	....	....
36	7	52	88.9	....	....	+.015	- .25	- .45	....	4	....	....
Br. 1147	8	6	76.1	-.003	-.006	+.003	+ .38	+ .18	+0.24	4	.63	+ .12
1 H. Draco.	9	22	81.8	+.022	+.006	+.016	+ .54	+ .34	+0.74	4	.37	- .14
Gr. 1586	9	48	73.4	+.008	-.014	+.022	+ .75	+ .55	+1.16	3	.47	- .04
145	10	14	84.8	....	....	-.002	+ .31	+ .11	....	4	....	....
9 H. Draco.	10	26	76.3	+.025	+.013	+.012	+ .21	+ .01	-0.34	4	.54	+ .03
4 H. Draco.	12	7	78.2	-.025	-.022	-.003	+ .05	- .15	+1.07	4	.53	+ .02
57	12	14	88.3	....	....	-.015	- .02	- .22	....	4	....	....
$\varkappa$ Draconis	12	28	70.4	+.032	+.021	+.011	- .13	- .33	-0.25	4	.60	+ .09
61	12	48	88.0	....	....	-.005	.00	- .20	....	4	....	....
Gr. 2001	13	23	72.9	+.007	-.005	+.012	+ .07	- .13	+0.25	4	.45	- .06
4 Urs. Min.	14	9	78.0	-.003	-.008	-.005	+ .28	+ .08	+0.58	4	.43	- .08
69	14	27	76.2	....	....	-.003	+ .12	- .08	....	4	....	....
73	15	11	87.6	...	....	-.016	+ .20	.00	....	4	....	....
ζ Urs. Min.	15	47	78.1	+.007	+.002	+.005	- .22	- .42	+0.04	3	.54	+ .03
A Draconis	16	28	69.0	+.023	+.017	+.006	+ .39	+ .19	+0.14	2	.48	- .03
ε Urs. Min.	16	56	82.2	-.028	-.025	-.003	+ .42	+ .22	-0.18	4	.53	+ .02
δ Urs. Min.	18	6	86.6	-.016	-.026	+.010	+ .47	+ .27	-0.84	3	.36	- .15
96	18	49	75.3	....	....	+.002	+ .15	- .05	....	4	....	....
λ Urs. Min.	19	28	89.0	-.010	-.017	+.007	- .09	- .29	-1.25	4	.84	+ .33
$\varkappa$ Cephei	20	12	77.4	+.001	+.006	-.005	+ .12	- .08	-0.78	4	.72	+ .21
105	20	30	72.2	....	....	+.006	+ .25	+ .05	....	4	....	....
76 Draconis	20	50	82.1	+.002	-.012	+.014	+ .35	+ .15	-0.60	4	.61	+ .10
Br. 2777	21	7	77.7	-.008	+.030	-.038	- .15	- .35	+0.01	3	.68	+ .17
111	21	20	86.6	....	....	+.004	+ .17	- .03	....	4	....	....
β Cephei	21	27	70.1	-.022	-.016	-.006	- .51	- .71	-0.62	2	.89	+ .38

Star.	R. A.	Decl.	U. (Obs. – B. J.) L.		$\Delta\alpha$ (U.C. – L.C.)	$\Delta\delta$ (U.C. – L.C.)		$\Delta\varphi$	Wt.	φ ½(U+L)	
	h m	°	s	s	s	"	v' "	"		"	v "
114 . . .	21 51	+73.2	. . .	. . . .	– .007 sec. δ	+0.48	+0.28	. . . .	4	. . . .	. . . .
24 Cephei .	22 7	71.8	+.017 sec. δ	+.021 sec. δ	– .004	+ .47	+ .27	+0.48	4	25.54	+0.03
118 . . .	22 30	75.7	. . . .	. . . .	+.010	– .01	– .21	. . . .	4	. . . .	. . . .
π Cephei .	23 4	74.8	– .008	– .008	.000	– .14	– .34	– 0.01	4	.54	+ .03
122 . . .	23 27	86.7	. . . .	. . . .	– .010	+ .20	.00	. . . .	4	. . . .	. . . .
γ Cephei .	23 35	77.0	– .010	+ .014	– .024	+ .38	+ .18	– 1.35	3	.27	– .24
124 . . .	23 49	73.8	. . . .	. . . .	– .007	– .15	– .35	. . . .	4	. . . .	. . . .

U. L.

Mean Δ (Obs. – B. J.), 32 stars, – ˢ.006 sec. δ

$v \pm .017$

Mean Δ (Obs. – B. J.), 32 stars, – ˢ.006 sec. δ

$v \pm .016$

Mean $\Delta\alpha$ (U. C. – L. C.), 47 stars, ˢ.000 sec. δ

$v \pm .010$

Direct Mean $\Delta\delta$ (U. C. – L. C.), 47 stars, +0″.204

$v' \pm .23$

Mean $\Delta\delta$ (U. C. – L. C.) by weights, +0 .197

Probable error one $\Delta\delta$, ±0″.19

Mean $\Delta\varphi$ (U. C. – L. C.), 32 stars, – 0″.05

Average $\Delta\varphi$, ± .54

Direct Mean φ, 32 stars, both culminations, 25″.51

Probable error φ from one star, ± .11

Mean φ by weights, 25 .51

The test of the influence of zenith distance upon the determination of $\Delta\delta$ (U. C.—L. C.), is to be found in the following summary, in which the 47 stars, arranged in order of Declination, have been divided into groups:

No. Stars.	M. Decl.	Zenith Distance. U. C.	L. C.	Δ Z. D.	Obs. $\Delta\delta$
6	88°.4	U. C. 51°	L. C. 54°	3°	– 0″.03
6	86 .4	49	56	7	+ .25
6	83 .1	46	60	14	+ .36
6	78 .2	41	64	23	+ .11
6	76 .2	39	66	27	+ .27
6	74 .4	37	68	31	+ .24
6	72 .4	35	70	35	+ .32
5	70 .0	33	72	40	+ .11
					Mean, +0″.20

The stars range in Declination from 69° to 89°, the average being 78°.8. The $\Delta\delta$ may be adopted as constant, throughout.

The average *corrections* to the B. J. Declinations, to be derived from Table XX, for $\Delta\varphi$, (U. C.—L. C.), may be summarized as follows:

No. Stars.	Decl. Limits.	M. Decl.	Obs. Corr. to B. J.
9	80° to 90°	87°.1	+0″.11
11	75 to 80	77 .2	+0 .10
12	70 to 75	71 .8	– 0 .10

TABLE XXI. The observed positions, of all stars not in B. J., have been compared, and the results are presented in this table, in order of Declination. The groups vary in width, and observations at lower culmination are combined separately. The sign of the $\Delta\delta$, for the lower culminations, should perhaps be reversed, for more consistent exhibition of differences. The determinations at L. C. were made in the second and third years, West and East respectively. The greater part of the other determinations, in the first and second years, East and West respectively. In consideration of the possible bearing of the *bisection error* upon these differences, the determinations, made by observations of zenith stars, are here presented:

E 1894.1	8 det.	$\frac{1}{2}\ \Delta\varphi = +0''.13$
E 1894.6	5	$-0\ .03$
W 1895.6	10	$+0\ .13$
E 1896.4	8	$+0\ .03$
E 1896.5	8	$-0\ .02$

$\frac{1}{2}\ \Delta\varphi$ being the observed error tabulated in the sense (S − N).

TABLE XXI.—SYSTEMATIC DIFFERENCE (E − W).

Stars Not in B. J.

Decl. Limits.		No.	M. Decl.	Z. D.	$\Delta\alpha$	$\Delta\delta$
−40°	−35°	15	−37°.6	75° S	−".024 sec. δ	+0".28
−35	−25	29	−33 .0	70	− .005 "	+ .18
−25	−10	26	−17 .9	55	− .004 "	− .12
−10	+15	36	+ 1 .4	36	.000 "	− .14
+15	+37 20′	24	+25 .5	12 S	+ .003 "	+ .21
+37 20′	+70	13	+51 .9	15 N	+ .020 "	+ .32
+70	+80	6	+74 .4	37	.000 "	+ .22
+80	+90	9	+86 .1	49	− .005 "	+ .18
+90	+80 l. c.	9	+86 .1	57	− .011 "	+ .34
+80 l. c.	+70 l. c.	6	+74 .4	68 N	+ .008 "	− .12
		173	Mean by wts.,		− .002 "	+ .09
			South of Zen.,		− .004 "	+ .05
			North of Zen.,		+ .004 "	+ .21

The explanation of the systematic difference in Declination may be found in the change of bisection error, which would affect the determinations North of the Zenith, but would be eliminated from those South.

TABLE XXII. The following table gives the probable errors of observation for the stars not in B. J., arranged by groups of Declination. These stars have received a uniform number of observations, 4 in each position, counting the lower culminations separately. In obtaining the probable error for the mean of 4 observations in one position, no account has been made of systematic differences, which are evident in some of the groups. The differences are treated as residuals, due to accidental causes. One difference in R. A. and three in Decl. have been rejected, from the whole number, 173 residuals.

The Circumpolar stars give smaller residuals than the others, in Right Ascension, when reduced to seconds of arc.

The probable error of Declination is made up of a constant term, and of one which varies with zenith distance; depending upon the difference between the Z. D. of the star, and of the zone of fundamental stars:

TABLE XXII.—PROBABLE ERROR.

Decl. Limits.		No.	M. Decl.	Z. D.	tan. Z. D.	Mean of 4 Observations. From Δ (E − W). R. A.	Decl.	Comp.	One Observation. From 4 Observations West. R. A.	Decl.	Comp.
−40°	−35°	15	−37°.6	75° S	3.7	±ˢ.015 sec. δ	±″.27	±″.24	±ˢ.018 sec. δ	±″.42	±″.39
−35	−25	29	−33 .0	70	2.7	.015 "	.19	.21	.019 "	.31	.30
−25	−10	26	−17 .9	55	1.4	.015 "	.21	.19	.019 "	.27	.22
−10	−15	36	+ 1 .4	36	0.7	.008 "	.15	.18	.021 "	.19	.20
+15	+37 20′	24	+25 .5	12 S	0.2	.014 "	.16	.19	.021 "	.20	.21
+37 20′	+70	13	+51 .9	15 N	0.3	.014 "	.25	.19	.014 "	.18	.23
+70	+80	6	+74 .4	37	0.7	.015 "	.17	.20	.016 "	.26	.25
+80	+90	9	+86 .1	49	1.2	.008 "	.17	.20	.020 "	.28	.29
+90	+80 l. c.	9	+86 .1	57	1.5	.007 "	.23	.21	.012 "	.30	.31
+80 l. c.	+70 l. c.	6	+74 .4	68 N	2.5	.008 "	.27	.25	.014 "	.38	.40
		173	Mean by weights,			± .012 "	±″.19		± .019 "	±″.26	
			First six groups,			± .013 "			± .019 "		
			Last four groups,			± .009 "			± .016 "		
			Equator to Zenith,				±0″.15			±0″.19	
			Circumpolars U. C.,				±0 .17			±0 .27	
			" L. C.,				±0 .25			±0 .33	
							Obs − c.	±″.03		Obs. − c.	±″.02

Probable error, mean of 8 obs. = ±ˢ.008 sec. δ ±″.13; average values.
Probable error for circumpolars, by combining the two culminations = ±ˢ.004 sec. δ ±″.10; 8 obs. at each culmination.

The probable error for the mean of 4 observations, obtained by comparison of determinations East and West, is larger in Right Ascension than would be derived from the 4 observations in one position. This is to be anticipated, since systematic errors are, undoubtedly, included in each group.

In Declination the difference can be directly accounted for, by the inclusion of the probable error of graduation, in the mean of 4.

Thus, for the average: p. e. of obs., $\pm 0''.13$
p. e. of grad., $\pm 0\ .15$
Total p. e., $\pm 0\ .20$, mean of 4.

The probable error of one determination of Declination is represented by the square root of the following expression, derived by least square solution:

$$\text{p. e. 1 obs.} = (.20)^2 + (.11\ \Delta \text{ tan. Z. D.})^2;$$

where the last term is the difference between the tangent zenith distance of the star, and the tangent zenith distance of the equatorial zone of fundamental stars. The last column of the above table gives the probable error computed by this formula.

Employing the same expression for the probable error of observation, and prefixing the probable error of graduation, the probable error for the mean of 4 observations is to be represented by the square root of the following:

$$\text{p. e. mean of 4 obs.} = (.15)^2 + (.10)^2 + (.06\ \Delta \text{ tan. Z. D.})^2$$

The values computed by this formula are given in the appropriate column of the table.

Finally, the probable error for the mean of both positions of the instrument, 8 observations in all, should be of the form:

$$\text{p. e. mean of 8 obs.} = \text{square root of } (.10)^2 + (.07)^2 + (.04\ \Delta \text{ tan. Z. D.})^2$$

TABLE XXIII.—THE OBSERVED LATITUDE.

The values of φ, tabulated here for each night, have been corrected for flexure, to the amount of $0''.1 \sin Z.D.$

The weight and average temperature of the night are recorded, but no weights have been used in combining the material.

The φ from Equatorial stars is, in general, the mean of 8 observations, though in some cases 6 have been adopted.

The φ from Circumpolar stars is usually the mean of three pairs. Two pairs have been accepted, for some nights; and in all cases the half sum of the determinations at each culmination is adopted, as the value from circumpolar observations.

Nights, with less than the above number of determinations, have been bracketed, and are not included in the *means* of the annual, nor consecutive series.

The column headed (C. P.—Eq.), gives for each night the difference of the observed φ. It is evident that this quantity may be used as a *correction*, to be applied to the declinations derived from Equatorial stars, to reduce them, night by night, to a system depending upon Circumpolar stars. Since the same stars are not observed at both culminations, on the same night, the process would result in the adoption of the declinations of the North stars, in place of those of the Equatorial stars, as standard. For the determination of Southern stars, we should then include the systematic errors of observation, some of which have been thus far eliminated for those stars; as they have been also from determinations of North stars at both culminations.

The "Mean" of the table is the half sum of the values of φ, from Equatorial and from Circumpolar stars. This mean will be affected by the systematic error of the B. J. Declinations, a question which will have further consideration. But, as far as concerns *systematic errors of observation*, the mean result will be largely free from their influence. The error of Nadir determination will directly affect the mean result, but the error of graduation, for the Nadir divisions, will be eliminated from circle readings made in both positions of the instrument. The error of bisection, if it is assumed to be constant for all zenith distances, will be eliminated from the mean of North and South values of φ. Refraction errors are very nearly eliminated, for zenith distances of similar range.

The reduction $(\varphi - \varphi_0)$, for latitude variation, has been computed by CHANDLER'S elements,* for the beginning and middle of each month, and the intermediate values interpolated. The reduction is small for the greater part of this series. The average is $\pm 0''.05$ per night, and but $\pm 0''.02$ during the first half of the series. It did not amount to $0''.1$ until July, 1895, and the maximum is $+0''.2$ in February, 1896. The mean correction, $(\varphi - \varphi_0)$, is $-0''.013$.

* $\varphi - \varphi_0 = -0''.16\,[\lambda + (t - 2\,411\,790)\,0^{\circ}.85] - r_2 \cos(\odot - G)$. A. J. XIV. 18.

Since observations with the Meridian Circle have been continued without interruption, following the close of the series under discussion here, further material will be eventually available for the discussion of this subject.

The reduction $(\varphi - \varphi_0)$ is applied to the results from South and North stars, separately, and to the mean.

Having obtained, for the mean of the consecutive series of 162 nights, the values of φ_0 for the respective columns, the individual nights are then to be compared with the means. For the values derived from Equatorial stars, the differences from the mean are taken out in the sense (mean − night), in order that the column (Δ Eq.) shall present the proper *corrections* to be applied to the observed Declinations, to reduce them to the zenith point, with a standard latitude. It will be clear that the process of obtaining declinations, from a series of fundamental stars, is equivalent to obtaining declinations from the zenith point, with such a value of the latitude, as the observations of the fundamental stars furnish, at the time.

Adopting, then, the value of φ_0, 37° 20′ 25″.66, which results from the whole series of observations of B. J. Equatorial stars, the determinations of declination made upon any night, will require the correction from the column (Δ Eq.), in order to reduce them to so-called fundamental determinations. For lower culmination, the correction will of course be applied with sign reversed.

In results thus obtained, the bisection error, if assumed to be constant, will not affect observations south of the zenith. For those north of the zenith, it will have the same effect as has already been included; and will be eliminated from the mean of determinations, made at both culminations of a North star.

The final column of residuals, for the φ_0 determined for each night, will illustrate the improvement due to the use of the reduction for $(\varphi - \varphi_0)$. The average residual of φ (not given in detail in the table) is $\pm$ 0″.200; and of φ_0 is $\pm$ 0″.185; which is about what should be anticipated, from the application of a real correction, of the size computed with the elements.

The results, by years, follow the consecutive series by nights; and the value derived from observations of 22 Zenith stars from B. J., is appended. In reference to this last value, φ_0 25″.85, the B. J. places appear to have errors of comparatively large size. The declinations of the American Ephemeris would reduce the observed latitude, by 0″.23, for 16 of these stars.

TABLE XXIII.—OBSERVED LATITUDE. φ AND φ_0. B. J. DECLINATIONS.

Date.		Wt.	Temp.	φ Eq.	φ C. P.	C. P. – Eq.	Mean.	$\varphi - \varphi_0$	φ_0 Eq.	Δ Eq.	φ_0 C.P.	φ_0 Mean.	v
1893.		E	°	"	"	"	"	"	"	"	"	"	"
Sept.	13	3	51	25.88	25.38	−0.50	25.63	+0.01	25.87	−0.21	25.37	25.62	+0.05
	14	3	58	25.60	25.66	+ .06	25.63	+ .01	25.59	+ .07	25.65	25.62	+ .05
	15	3	55	25.75	25.24	− .51	25.50	+ .01	25.74	− .08	25.23	25.49	− .08
	20	3	43	26.39	25.32	−1.07	25.85	.00	26.39	− .73	25.32	25.85	+ .28
	22	3	58	26.10	25.42	− .68	25.76	.00	26.10	− .44	25.42	25.76	+ .19
	25	2	58	26.25	25.55	− .70	25.90	.00	26.25	− .59	25.55	25.90	+ .33
Oct.	2	2	59	25.54	25.12	− .42	25.33	− .01	25.55	+ .11	25.13	25.34	− .23
	3	2	54	26.04	25.12	− .92	25.58	− .01	26.05	− .39	25.13	25.59	+ .02
	5	3	60	25.83	25.25	− .58	25.54	− .01	25.84	− .18	25.26	25.55	− .02
	10	2	42	26.14	24.98	−1.16	25.56	− .02	26.16	− .50	25.00	25.58	+ .01
	11	3	55	26.06	25.16	− .90	25.61	− .02	26.08	− .42	25.18	25.63	+ .06
	12	3	58	25.85	25.33	− .52	25.59	− .03	25.88	− .22	25.36	25.62	+ .05
	13	4	64	26.47	25.40	−1.07	25.93	− .03	26.50	− .84	25.43	25.96	+ .39
	(16)	3	42	(25.74)	(25.60)	....	....	...	....	....	....	.. .	....
	17	4	44	26.13	25.57	− .56	25.85	− .03	26.16	− .50	25.60	25.88	+ .31
	(18)	3	44	(26.18)	(26.40)	....	....	....	....	....	....	....	....
Nov.	2	4	44	25.58	25.76	+ .18	25.67	− .04	25.62	+ .04	25.80	25.71	+ .14
	3	4	50	25.49	25.54	+ .05	25.51	− .04	25.53	+ .13	25.58	25.55	− .02
	7	4	50	25.50	25.32	− .18	25.41	− .04	25.54	+ .12	25.36	25.45	− .12
	8	4	50	25.30	25.12	− .18	25.21	− .04	25.34	+ .32	25.16	25.25	− .32
	13	3	59	25.12	24.92	− .20	25.02	− .05	25.17	+ .49	24.97	25.07	− .50
	14	4	56	25.40	25.20	− .20	25.30	− .05	25.45	+ .21	25.25	25.35	− .22
	(15)	4	53	——	——	....	.. .	....	....	....	....	....	....
	(21)	2	38	(25.53)	(25.71)	....	....	....	....	....	....	....	....
Dec.	(4)	3	55	(25.44)	(24.14)	....	....	....	....	....	....	....	....
	6	4	57	25.37	25.27	− .10	25.32	− .06	25.43	+ .23	25.33	25.38	− .19
	(8)	3	56	(26.04)	(25.6)	....	....	....	....	....	....	....	....
	9	4	54	25.88	25.22	− .66	25.55	− .06	25.94	− .28	25.28	25.61	+ .04
	11	3	47	25.56	24.98	− .58	25.27	− .06	25.62	+ .04	25.04	25.33	− .24
	(16)	3	56	(25.05)	(25.53)	....	....	....	....	....	....	....	....
	19	3	44	25.69	25.23	− .46	25.46	− .06	25.75	− .09	25.29	25.52	− .05
	(29)	2	40	(25.54)	(25.08)	....	....	....	....	....	....	....	....
1894.													
Jan.	10	3	43	25.84	25.70	− .14	25.77	− .06	25.90	− .24	25.76	25.83	+ .26
	11	4	48	25.78	25.44	− .34	25.61	− .06	25.84	− .18	25.50	25.67	+ .10
	12	3	44	25.54	25.32	− .22	25.43	− .06	25.60	+ .06	25.38	25.49	− .08
Feb.	1	3	32	25.94	25.52	− .42	25.73	− .04	25.98	− .32	25.56	25.77	+ .20
	2	3	34	25.66	25.56	− .10	25.61	− .04	25.70	− .04	25.60	25.65	+ .08
	13	4	38	25.77	25.53	− .24	25.65	− .04	25.81	− .15	25.57	25.69	+ .12
	14	3	41	26.18	26.00	− .18	26.09	− .04	26.22	− .56	26.04	26.13	+ .56
	26	3	47	25.49	25.40	− .09	25.44	− .03	25.52	+ .14	25.43	25.47	− .10
	(27)	2	39	(25.86)	(25.88)	....	....	....	....	....	....	....	....
	28	3	44	25.69	25.55	− .14	25.62	− .03	25.72	− .06	25.58	25.65	+ .08
March	(8)	2	43	(25.64)	(25.8)	....	....	....	....	....	....	....	....
	12	3	50	25.52	25.76	+ .24	25.64	− .02	25.54	+ .12	25.78	25.66	+ .09
	14	3	44	25.88	25.56	− .32	25.72	− .02	25.90	− .24	25.58	25.74	+ .17
	(15)	2	47	(25.72)	(26.0)	....	....	....	....	....	....	....	....
	21	2	33	25.63	25.35	− .28	25.49	− .01	25.64	+ .02	25.36	25.50	− .07
	22	4	39	25.91	25.41	− .50	25.66	− .01	25.92	− .26	25.42	25.67	+ .10
	23	2	44	25.57	25.49	− .08	25.53	− .01	25.58	+ .08	25.50	25.54	− .03
April	(2)	1	47	(25.55)	(25.02)	....	....	....	....	....	....	....	....
	3	4	51	25.34	25.00	− .34	25.17	.00	25.34	+ .32	25.00	25.17	− .40
	4	4	52	25.53	25.70	+ .17	25.62	.00	25.53	+ .13	25.70	25.62	+ .05
	5	3	53	25.86	25.62	− .24	25.74	.00	25.86	− .20	25.62	25.74	+ .17
	(6)	2	49	(25.56)	(25.27)	....	....	....	....	....	....	....	....
	9	3	60	25.52	25.12	− .40	25.32	.00	25.52	+ .14	25.12	25.32	− .25
	16	3	41	25.14	25.09	− .05	25.12	.00	25.14	+ .52	25.09	25.12	− .45
	17	3	53	25.61	25.23	− .38	25.42	.00	25.61	+ .05	25.23	25.42	− .15
	18	3	60	24.93	24.87	− .06	24.90	.00	24.93	+ .73	24.87	24.90	− .67

TABLE XXIII.—OBSERVED LATITUDE. φ AND φ_0. B. J. DECLINATIONS.

Date.	Wt.	Temp.	φ Eq.	φ C. P.	C. P. – Eq.	Mean.	$\varphi - \varphi_0$	φ_0 Eq.	Δ Eq.	φ_0 C.P.	φ_0 Mean.	v
1894.	E	°	"	"	"	"	"	"	"	"	"	"
April (23)	2	41	(25.79)	(25.82)	....	....	....	....	...	....	....	....
30	2	50	25.52	24.80	−0.72	25.16	0.00	25.52	+0.14	24.80	25.16	−0.41
May 2	4	49	25.66	25.72	+ .06	25.69	.00	25.66	.00	25.72	25.69	+ .12
7	3	63	25.44	25.16	− .28	25.30	+ .01	25.43	+ .23	25.15	25.29	− .28
9	3	60	25.81	25.15	− .66	25.48	+ .01	25.80	− .14	25.14	25.47	− .10
22	2	51	25.91	25.93	+ .02	25.92	.00	25.91	− .25	25.93	25.92	+ .35
23	3	50	25.52	25.20	− .32	25.36	.00	25.52	+ .14	25.20	25.36	− .21
June 8	2	49	25.55	25.58	+ .03	25.56	.00	25.55	+ .11	25.58	25.56	− .01
19	2	56	25.61	25.71	+ .10	25.66	.00	25.61	+ .05	25.71	25.66	+ .09
20	4	60	25.42	25.48	+ .06	25.45	.00	25.42	+ .24	25.48	25.45	− .12
21	4	58	25.07	25.17	+ .10	25.12	.00	25.07	+ .59	25.17	25.12	− .45
(22)	3	61	(25.41)	(25.64)	....	....	....	....	....	....	....	....
25	2	47	25.31	24.95	− .36	25.13	.00	25.31	+ .35	24.95	25.13	− .44
26	3	55	25.30	25.37	+ .07	25.34	.00	25.30	+ .36	25.37	25.34	− .23
(27)	3	57	(24.88)	(25.16)	....	...	....	....	....	....	....	....
July 5	3	71	25.44	25.48	+ .04	25.46	− .01	25.45	+ .21	25.49	25.47	− .10
6	4	67	25.77	25.67	− .10	25.72	− .01	25.78	− .12	25.68	25.73	+ .16
11	4	67	25.42	25.38	− .04	25.40	− .01	25.43	+ .23	25.39	25.41	− .16
13	2	68	25.44	25.50	+ .06	25.47	− .01	25.45	+ .21	25.51	25.48	− .09
16	2	70	25.26	24.86	− .40	25.06	− .01	25.27	+ .39	24.87	25.07	− .50
18	3	66	25.52	24.91	− .61	25.22	− .02	25.54	+ .12	24.93	25.24	− .33
20	4	66	25.90	25.52	− .38	25.71	− .02	25.92	− .26	25.54	25.73	+ .16
23	3	67	25.44	25.00	− .44	25.22	− 02	25.46	+ .20	25.02	25.24	− .33
(25)	3	59	(24.97)	....	....	....	....	....	....	....	....	....
Means first yr. 65 n.			25.65	25.35	−0.30	25.50	−0.018	25.67	....	25.37	25.52	....
v			±.24	±.22	±.25	±.19						
1894.	W	°	"	"	"	"	"	"	"	"	"	"
Oct. 3	3	67	25.55	25.21	−0.34	25.38	0.00	25.55	+0.11	25.21	25.38	−0.19
4	4	71	25.24	25.16	− .08	25.20	.00	25.24	+ .42	25.16	25.20	− .37
5	4	66	25.19	25.29	+ .10	25.24	.00	25.19	+ .47	25.29	25.24	− .33
9	4	63	25.61	25.27	− .34	25.44	.00	25.61	+ .05	25.27	25.44	− .13
10	3	58	25.42	25.19	− .23	25.31	.00	25.42	+ .24	25.19	25.31	− .26
12	4	60	25.58	25.52	− .06	25.55	+ .01	25.57	+ .09	25.51	25.54	− .03
(15)	2	72	(26.08)	(25.70)	...	....	....	....	....	....	....	....
16	3	62	25.52	25.60	+ .08	25.56	+ .01	25.51	+ .15	25.59	25.55	− .02
22	3	51	25.84	25.44	− .40	25.64	+ .01	25.83	− .17	25.43	25.63	+ .06
25	4	58	25.27	25.43	+ .16	25.35	+ .01	25.26	+ .40	25.42	25.34	− .23
29	3	55	25.42	24.78	− .64	25.10	+ .02	25.40	+ .26	24.76	25.08	− .49
Nov. 5	2	63	25.50	25.28	− .22	25.39	+ .02	25.48	+ .18	25.26	25.37	− .20
6	2	65	25.39	25.83	+ .44	25.61	+ .02	25.37	+ .29	25.81	25.59	+ .02
8	4	65	25.49	25.79	+ .30	25.64	+ .02	25.47	+ .19	25.77	25.62	+ .05
14	3	62	25.38	25.38	.00	25.38	+ .03	25.35	+ .31	25.35	25.35	− .22
16	4	55	25.70	25.40	− .30	25.55	+ .03	25.67	− .01	25.37	25.52	− .05
19	3	61	25.47	25.52	+ .05	25.50	+ .03	25.44	+ .22	25.49	25.47	− .10
23	5	56	25.86	25.60	− .26	25.73	+ .04	25.82	− .16	25.56	25.69	+ .12
Dec. 13	3	44	25.92	25.36	− .56	25.64	+ .06	25.86	− .20	25.30	25.58	+ .01
1895.												
Jan. 25	3	37	25.33	24.99	− .34	25.16	+ .08	25.25	+ .41	24.91	25.08	− .49
26	3	34	25.80	25.54	− .26	25.67	+ .08	25.72	− .06	25.46	25.59	+ .02
28	2	32	26.02	25.81	− :21	25.91	+ .08	25.94	− .28	25.73	25.83	+ .26
29	4	44	(26.36)	(26.64)	(+ .28)	(26.50)	....	...	....	....	....	....
30	3	45	26.01	25.35	− .66	25.68	+ .08	25.93	− .27	25.27	25.60	+ .03
31	3	46	26.08	25.76	− .32	25.92	+ .08	26.00	− .34	25.68	25.84	+ .27
Feb. 1	4	47	25.60	25.23	− .37	25.42	+ .09	25.51	+ .15	25.14	25.33	− .24
2	3	48	25.94	25.78	− .16	25.86	+ .09	25.85	− .19	25.69	25.77	+ .20
4	4	51	25.93	26.15	+ .22	26.04	+ .08	25.85	− .19	26.07	25.96	+ .39
5	3	51	25.82	25.98	+ .16	25.90	+ .08	25.74	− .08	25.90	25.82	+ .25

TABLE XXIII.—OBSERVED LATITUDE. φ AND φ_0. B. J. DECLINATIONS.

Date.	Wt.	Temp.	φ Eq.	φ C. P.	C. P. – Eq.	Mean.	$\varphi - \varphi_0$	φ_0 Eq.	Δ Eq.	φ_0 C.P.	φ_0 Mean.	v
1895.	W	°	″	″	″	″	″	″	″	″	″	″
Feb. (6)	2	50	(25.91)	(26.25)	...	....	....	....	....	....	....	....
(14)	2	44	(26.6)	....	....	....	....	...	...	....	....	....
18	4	51	25.84	24.80	−1.04	25.32	+0.08	25.76	−0.10	24.72	25.24	−0.33
20	3	44	26.06	25.61	− .45	25.83	+ .07	25.99	− .33	25.54	25.76	+ .19
(26)	2	54	(26.78)	(25.88)	....	....	....	....	....	....	....	....
27	4	58	26.15	25.89	− .26	26.02	+ .07	26.08	− .42	25.82	25.95	+ .38
28	3	53	26.15	25.39	− .76	25.77	+ .07	26.08	− .42	25.32	25.70	+ .13
March 4	4	51	25.62	25.43	− .19	25.52	+ .07	25.55	+ .11	25.36	25.45	− .12
April 2	4	43	25.65	25.97	+ .32	25.81	+ .04	25.61	+ .05	25.93	25.77	+ .20
5	2	42	26.08	26.47	+ .39	26.27	+ .04	26.04	− .38	26.43	26.23	+ .66
8	3	45	25.27	26.01	+ .74	25.64	+ .03	25.24	+ .42	25.98	25.61	+ .04
10	3	35	25.53	25.18	− .35	25.36	+ .03	25.50	+ .16	25.15	25.33	− .24
11	5	46	25.58	25.95	+ .37	25.76	+ .02	25.56	+ .10	25.93	25.74	+ .17
15	4	47	25.47	25.73	+ .26	25.60	+ .02	25.45	+ .21	25.71	25.58	+ .01
17	3	47	25.55	25.27	− .28	25.41	+ .01	25.54	+ .12	25.26	25.40	− .17
18	3	51	25.22	25.40	+ .18	25.31	+ .01	25.21	+ .45	25.39	25.30	− .27
22	4	64	25.03	25.69	+ .66	25.36	.00	25.03	+ .63	25.69	25.36	− .21
May 7	2	52	25.64	25.24	− .40	25.44	− .02	25.66	.00	25.26	25.46	− .11
8	3	52	25.53	25.25	− .28	25.39	− .02	25.55	+ .11	25.27	25.41	− .16
(9)	2	55	(25.61)	(25.0)	....	....	....	....	....	....	....	....
13	4	66	25.63	25.57	− .06	25.60	− .03	25.66	.00	25.60	25.63	+ .06
14	4	64	25.38	25.57	+ .19	25.48	− .03	25.41	+ .25	25.60	25.51	− .06
16	3	60	25.74	25.35	− .39	25.54	− .03	25.77	− .11	25.38	25.57	.00
17	4	56	25.69	25.20	− .49	25.45	− .03	25.72	− .06	25.23	25.48	− .09
21	3	49	25.97	25.53	− .44	25.75	− .04	26.01	− .35	25.57	25.79	+ .22
22	4	50	25.66	25.09	− .57	25.37	− .05	25.71	− .05	25.14	25.42	− .15
23	2	51	26.03	25.57	− .46	25.80	− .05	26.08	− .42	25.62	25.85	+ .28
29	2	49	26.14	25.28	− .86	25.71	− .06	26.20	− .54	25.34	25.77	+ .20
July 15	3	75	25.52	25.40	− .12	25.46	− .13	25.65	+ .01	25.53	25.59	+ .02
16	3	66	25.53	25.37	− .16	25.45	− .13	25.66	.00	25.50	25.58	+ .01
17	4	67	25.70	25.18	− .52	25.44	− .13	25.83	− .17	25.31	25.57	.00
19	3	62	26.03	25.49	− .54	25.76	− .13	26.16	− .50	25.62	25.89	+ .32
22	4	71	25.69	25.22	− .47	25.46	− .13	25.82	− .16	25.35	25.59	+ .02
23	5	72	25.56	25.71	+ .15	25.63	− .13	25.69	− .03	25.84	25.76	+ .19
24	3	71	25.59	25.02	− .57	25.31	− .13	25.72	− .06	25.15	25.44	− .13
25	4	68	25.47	24.89	− .58	25.18	− .13	25.60	+ .06	25.02	25.31	− .26
26	2	64	25.62	24.94	− .68	25.28	− .13	25.75	− .09	25.07	25.41	− .16
30	3	51	25.50	25.50	.00	25.50	− .14	25.64	+ .02	25.64	25.64	+ .07
31	5	63	25.29	25.57	+ .28	25.43	− .14	25.43	+ .23	25.71	25.57	.00
Aug. 5	5	76	25.30	25.26	− .04	25.28	− .14	25.44	+ .22	25.40	25.42	− .15
8	4	64	25.23	25.07	− .16	25.15	− .14	25.37	+ .29	25.21	25.29	− .28
12	5	70	25.40	25.43	+ .03	25.41	− .14	25.54	+ .12	25.57	25.55	− .02
14	4	72	25.49	25.91	+ .42	25.70	− .14	25.63	+ .03	26.05	25.84	+ .27
16	3	73	25.54	25.62	+ .08	25.58	− .14	25.68	− .02	25.76	25.72	+ .15
21	4	60	25.56	25.40	− .16	25.48	− .14	25.70	− .04	25.54	25.62	+ .05
Means second yr. 68 n.			25.63	25.46	−0.17	25.54	−0.015	25.64	....	25.47	25.56	....
		v	±.22	±.24	±.29	±.19						

TABLE XXIII.—OBSERVED LATITUDE φ AND φ_0. B. J. DECLINATIONS.

Date.	Wt.	Temp.	φ Eq.	φ C. P.	C. P. – Eq.	Mean.	$\varphi - \varphi_0$	φ_0 Eq.	Δ Eq.	φ_0 C.P.	φ_0 Mean.	v
1895.	E	°	"	"	"	"	"	"	"	"	"	"
Sept. 4	3	53	25.47	25.31	−0.16	25.39	−0.15	25.62	+0.04	25.46	25.54	−0.03
6	4	66	25.27	25.33	+ .06	25.30	− .14	25.41	+ .25	25.47	25.44	− .13
19	2	51	25.46	25.28	− .18	25.37	− .12	25.58	+ .08	25.40	25.49	− .08
23	4	60	25.27	25.41	+ .14	25.34	− .12	25.39	+ .27	25.53	25.46	− .11
Oct. 1	2	65	25.02	25.40	+ .38	25.21	− .11	25.13	+ .53	25.51	25.32	− .25
7	5	64	25.71	25.67	− .04	25.69	− .08	25.79	− .13	25.75	25.77	+ .20
9	4	63	25.44	25.66	+ .22	25.55	− .07	25.51	+ .15	25.73	25.62	+ .05
24	4	57	25.40	25.84	+ .44	25.62	− .03	25.43	+ .23	25.87	25.65	+ .08
Nov. 7	2	46	25.50	25.71	+ .21	25.60	.00	25.50	+ .16	25.71	25.60	+ .03
13	2	48	25.91	25.11	− .80	25.51	+ .01	25.90	− .24	25.10	25.50	− .07
19	4	64	25.68	25.36	− .32	25.52	+ .02	25.66	.00	25.34	25.50	− .07
Dec. 9	5	52	25.59	25.36	− .23	25.48	+ .08	25.51	+ .15	25.28	25.40	− .17
(20)	3	29	(25.13)	(26.1)	....	....	....	....	....	....	....	....
(30)	3	41	(25.39)	(25.8)	....	....	....	....	....	....	....	....
1896.												
Jan. 2	2	46	26.04	25.97	− .07	26.00	+ .14	25.90	− .24	25.83	25.86	+ .29
6	5	52	26.19	25.67	− .52	25.93	+ .15	26.04	− .38	25.52	25.78	+ .21
Feb. 7	3	41	25.98	25.86	− .12	25.92	+ .20	25.78	− .12	25.66	25.72	+ .15
12	4	47	26.42	26.04	− .38	26.23	+ .20	26.22	− .56	25.84	26.03	+ .46
March 10	4	48	25.68	25.80	+ .12	25.74	+ .20	25.48	+ .18	25.60	25.54	− .03
12	3	55	25.51	26.16	+ .65	25.84	+ .20	25.31	+ .35	25.96	25.64	+ .07
April 2	4	46	25.57	26.25	+ .68	25.91	+ .18	25.39	+ .27	26.07	25.73	+ .16
May 7	2	41	25.49	25.79	+ .30	25.64	+ .08	25.41	+ .25	25.71	25.56	− .01
11	2	39	25.85	25.87	+ .02	25.86	+ .06	25.79	− .13	25.81	25.80	+ .23
June 8	3	60	25.89	25.73	− .16	25.81	− .05	25.94	− .28	25.78	25.86	+ .29
10	3	65	25.94	25.82	− .12	25.88	− .06	26.00	− .34	25.88	25.94	+ .37
11	4	68	26.30	26.13	− .17	26.21	− .06	26.36	− .70	26.19	26.27	+ .70
12	5	67	25.61	26.21	+ .60	25.91	− .07	25.68	− .02	26.28	25.98	+ .41
16	2	64	25.87	25.83	− .04	25.85	− .08	25.95	− .29	25.91	25.93	+ .36
17	4	60	25.85	25.39	− .46	25.62	− .08	25.93	− .27	25.47	25.70	+ .13
19	3	64	25.99	25.65	− .34	25.82	− .09	26.08	− .42	25.74	25.91	+ .34
22	4	72	25.84	25.74	− .10	25.79	− .10	25.94	− .28	25.84	25.89	+ .32
(24)	5	73	(25.38)	(25.70)	....	....	....	....	....	....	....	....
(25)	5	72	(25.35)	(25.53)	....	....	....	....	....	....	....	....
(26)	4	66	(25.68)	(25.81)	....	....	....	....	....	....	....	....
(29)	2	54	(25.56)	(25.30)	....	....	....	....	....	....	....	....
Means third yr. 29 n.			25.71	25.70	−0.01	25.71	+0.004	25.71	....	25.70	25.70	....
v			±.24	±.24	±.28	±.21						

The continuous series gives the following mean results, for the epoch 1895.0:

	φ Eq.	φ C. P.	C. P. – Eq.	Mean.	$\varphi - \varphi_0$	φ_0 Eq.	Δ Eq.	φ_0 C. P.	φ_0 Mean.	v
162 nights,	25".65	25".46	—0".19	25".55	—0".013	25".66	±0".23	25".47	25".565	±0".185
v,	± .24	± .26	± .28	± .200						

Probable error of a determination of φ_0, by one night's observations, ±0".160.

The difference between the mean residuals of φ and φ_0 shows the improvement due to application of the correction for Variation. The average correction, $\varphi - \varphi_0$, is ±0".052.

The difference between φ, determined from Circumpolar stars at both culminations, is: (U. C. – L. C.) = +0".07.

The mean φ, from the series by nights, is in agreement with the mean φ of the set of 86 Equatorial stars, 25″.65.

The mean φ, from Circumpolar determinations, is for the series by nights 25″.46, and from the mean of 45 Circumpolar stars 25″.48; the difference being due to the fact that the individual stars have been given equal weight in this last mean, without reference to the number of observations.

The yearly results may now be exhibited together:

			φ Eq.	φ C. P.	C. P. – Eq.	Mean.	$\Delta\varphi$ (U.C. – L.C.)	φ_o Eq.	φ_o C. P.	φ_o Mean.
1893.7—	1894.5	E	25″.65	25″.35	—0″.30	25″.50	+0″.20	25″.67	25″.37	25″.52
94.8—	95.6	W	.63	.46	—0 .17	.54	—0 .04	.64	.47	.56
95.7—	96.5	E	.71	.70	—0 .01	.71	+0 .03	.71	.70	.70

With respect to the number of observations, the third year has but half the weight of the two years preceding.

The column (C. P. — Eq.) indicates the probable change in bisection error.

There is, apparently, an increase in the observed Normal Latitude.

The Latitude determined from the Zenith stars may be recorded here. Having been observed equally, facing North and South, the results are free from bisection error. The determination of each night has been corrected for Latitude Variation.

	Obs.	φ	φ_o
1894.1	34 E	25″.60	25″.65
94.6	22 E	25 .47	25 .49
95.6	40 W	25 .73	25 .87
96.5	64 E	25 .99	26 .07
Mean,	160 obs.	25″.77	25″.85
	22 stars.		

TABLE XXIV. We may now proceed to the derivation of systematic corrections to the B. J. Declinations, by means of the observed zenith distances. For the present, the latitude variation may be neglected, and the corrections derived directly from the observed φ. The table includes 72 Equatorial stars, which have been sufficiently observed in both positions of the instrument, Circle East and West. The probable error of a determination of φ from one star is $\pm 0''.24$; and since the p. e. of observation for the mean of both positions is $\pm 0''.13$, the p. e. of B. J. Declination would be $\pm 0''.20$.

In the table, the values of φ from three successive stars have been grouped, and the "correction" is the difference between individual groups and the mean, $25''.63$, taken in the sense (mean − group), to give the *correction* required for the B. J. Declinations of the group. These corrections are then combined in groups of 2, 4, and 6 hours.

The variation with Right Ascension is evident, and may be represented by the following expression, derived from the 2-hour groups:

$$\text{Observed Correction to B. J.} = -0''.15 \sin \alpha + 0''.03 \cos \alpha$$

The average residual, (Obs. − Comp.), by the use of this expression, is given at the foot of each column.

TABLE XXIV.—LATITUDE FROM EQUATORIAL STARS, AND CORRECTIONS.

Star.	h	"	Star.	h	"	Hourly Corr. 3 Stars. h	"	2 Hours. 6 Stars. h	"	4 Hours. 12 Stars. h	"	6 Hours. 18 Stars. h	"
γ Pegasi	0.1	25.64	η Virginis	12.2	25.09	0.5	−0.25						
12 Ceti	0.4	25.93	δ Virginis	12.8	25.54	1.8	+ .09	1.1	−0.08				
ε Piscium	0.9	26.08	ε Virginis	12.9	25.65	2.9	+ .04						
9 Ceti	1.3	26.22	9 Virginis	13.1	25.62	3.8	+ .33	3.4	+ .18	2.2	+0.05		
ξ Piscium	1.8	25.24	ζ Virginis	13.5	25.99	4.8	− .23						
ο Ceti	2.2	25.16	τ Virginis	13.9	24.76	6.0	− .33	5.4	− .28			3.3	−0.06
ξ 2 Ceti	2.4	25.57	μ Virginis	14.6	25.37	6.8	− .17						
η Eridani	2.9	25.72	P. 221	14.9	26.23	7.7	− .46	7.2	− .31	6.3	− .30		
ο Tauri	3.3	25.47	β Librae	15.2	25.51	8.9	− .28						
ε Eridani	3.5	25.04	α Serpentis	15.7	25.22	9.8	− .28	9.4	− .28				
ν Tauri	3.9	25.17	ε Serpentis	15.8	25.28	11.0	+ .10						
ο 1 Eridani	4.1	25.68	ζ Ophiuchi	16.5	25.75	11.8	+ .10	11.4	+ .10	10.4	− .09	9.3	− .16
ν Eridani	4.5	25.94	κ Ophiuchi	16.9	26.00	12.6	+ .20						
π 5 Orionis	4.8	25.52	α Herculis	17.2	24.99	13.5	+ .17	13.0	+ .18				
β Eridani	5.0	26.13	α Ophiuchi	17.5	25.53	14.9	− .07						
κ Orionis	5.7	26.14	β Ophiuchi	17.6	25.54	16.0	+ .21	15.4	+ .07	14.2	+ .13		
ν Orionis	6.0	26.27	ν Ophiuchi	17.9	26.46	17.2	+ .12						
8 Monoc.	6.3	25.47	72 Ophiuchi	18.0	25.75	17.8	+ .05	17.5	+ .08			15.3	+ .11
S Monoc.	6.6	25.85	λ Aquilae	19.0	25.64	19.2	+ .09						
18 Monoc.	6.7	25.27	ω Aquilae	19.2	25.61	19.9	+ .13	19.5	+ .11	18.5	+ .10		
λ Gemin.	7.2	26.28	δ Aquilae	19.3	25.38	20.8	+ .11						
β Can. Min.	7.4	25.89	γ Aquilae	19.7	25.63	21.9	+ .06	21.4	+ .08				
25 Monoc.	7.5	25.97	β Aquilae	19.8	25.23	22.7	− .08						
Br. 1197	8.3	26.41	9 Aquilae	20.1	25.65	23.6	+ .30	23.2	+ .11	22.2	+ .10	21.3	+ .10
ε Hydrae	8.7	26.22	ε Delphini	20.5	25.36	Av.	±0.175	Av.	±0.155	Av.	±0.13	Av.	±0.11
α Cancri	8.9	25.89	ε Aquarii	20.7	25.46								
9 Hydrae	9.1	25.62	α Equulei	21.2	25.75	Obs − c	±0.145	2^h	±0.11	4^h	±0.06	6^h	±0.03
ο Leonis	9.6	26.14	ε Pegasi	21.7	25.78								
6 Sextantis	9.8	26.07	20 Pegasi	21.9	25.15								
π Leonis	9.9	25.52	9 Aquarii	22.2	25.78								
1 Leonis	10.7	25.56	γ Aquarii	22.3	25.61								
χ Leonis	11.0	25.68	λ Aquarii	22.8	25.49								
σ Leonis	11.3	25.35	α Pegasi	23.0	26.02								
υ Leonis	11.5	25.60	κ Piscium	23.4	25.15								
β Virginis	11.8	25.37	ι Piscium	23.6	25.24								
ο Virginis	12.0	25.63	ω Piscium	23.9	25.60								
Mean φ, for 72 stars; E. and W.					25.63								
P. E. φ from one star					±0.24								

TABLE XXV. The observed correction to the B. J. Declinations is obtained, for Circumpolar stars, in the same manner as for the preceding table. There are 45 stars, of which there are 36 observed at U. C., 41 observed at L. C., and 32 at both. Each culmination furnishes a correction, and in the table either 6 or 7 consecutive values are combined, for the 2-hour groups.

The variation, with respect to Right Ascension, may be represented by the following expression; similar to that derived for Equatorial stars:

$$\text{Observed correction to B. J.} = -0''.13 \sin \alpha + 0''.10 \cos \alpha;$$

and the average differences, (Obs.—comp.), are given at the foot of each column. The observed φ is taken directly from Table XIII, to which reference may be made, if desired.

Probable errors may be derived by two methods: First, when the p. e. of observation, obtained by comparison of determinations East and West, is deducted from the p. e. of φ for each culmination, there remains the p. e. of B. J. Declination, $\pm 0''.18$, and $\pm 0''.19$, respectively.

Again, by comparison of the determinations at the two culminations, the p. e. of observation, for the mean of both, results $\pm 0''.10$. The p. e. of φ for a single star, determined in this manner is $\pm 0''.24$; whence the p. e. of B. J. Declination would be $\pm 0''.22$, a larger quantity than derived from the separate culminations. In general the p. e. of B. J. Declination, including the Equatorial stars, may be adopted as $\pm 0''.20$.

TABLE XXV.—CORRECTIONS FOR CIRCUMPOLAR STARS.

Star.	R. A.	U. C.	L. C.	Star.	R. A.	U. C.	L. C.	2 Hours.			4 Hours.		6 Hours.	
	h	"	"		*h*	"	"	*h*	No.	"	*h*	"	*h*	"
21 Cassiop.	0.6	−0.15	−0.12	4 H. Draco.	12.1	−0.58	−0.49							
43 H. Cephei	0.9	− .20	− .04	κ Draco.	12.5	+ .02	+ .23							
α Urs. Min.	1.3	− .19	− .07	Gr. 2001	13.4	− .08	− .17							
40 Cassiop.	1.5	....	− .28	4 Urs. Min.	14.2	− .23	− .35	1.0	7	−0.15				
50 Cassiop.	1.9	− .08	− .92	β Urs. Min.	14.9	....	− .36							
36 H. Cass.	2.5	− .14	− .08	γ Urs. Min.	15.3	− .51	....	2.5	6	− .31	1.7	−0.23		
47 H. Cephei	2.9	....	− .36	ζ Urs. Min.	15.8	− .07	+ .03							
48 H. Cephei	3.1	....	− .27	19 Urs. Min.	16.2	+ .54	....	4.1	6	− .05			2.5	−0.17
5 H. Cam.	3.7	− .14	+ .35	A Draco.	16.5	− .06	− .08							
Gr. 750	4.1	+ .07	+ .28	ε Urs. Min.	16.9	+ .05	+ .13	5.9	7	+ .34	5.1	+ .15		
Gr. 848	4.6	− .32	− .53	ψ Dr. Aus.	17.7	− .11	....							
19 H. Cam.	5.1	....	+ .18	35 Draco.	17.9	...	+ .30	8.1	7	− .20				
Gr. 966	5.4	+ .82	+ .54	δ Urs. Min.	18.1	+ .55	+ .29							
22 H. Cam.	6.1	+ .12	− .42	χ Draco.	18.4	− .04	....	10.9	7	− .30	9.5	− .25	8.3	− .05
23 H. Cam.	6.5	+ .65	+ .51	τ Draco.	19.3	....	− .18							
51 H. Cephei	6.9	+ .03	− .03	λ Urs. Min.	19.5	+ .27	+ .98	13.4	6	− .10				
Gr. 1374	7.8	....	− .44	κ Cephei	20.2	+ .16	+ .62							
Br. 1147	8.1	− .26	+ .02	76 Draco.	20.8	+ .18	+ .44	15.9	7	− .07	14.7	− .08		
1 H. Draco.	9.4	− .25	− .49	Br. 2777	21.1	− .19	+ .18							
Gr. 1586	9.8	− .56	− .60	β Cephei	21.5	− .09	+ .71	17.6	6	+ .20			15.6	+ .01
9 H. Draco.	10.4	+ .12	+ .22	24 Cephei	22.1	− .29	− .19							
λ Draco.	11.4	....	− .20	π Cephei	23.1	− .04	+ .05	19.5	6	+ .30	18.6	+ .25		
				γ Cephei	23.6	+ .89	+ .46							
								21.1	6	+ .20				
U. C., 36 stars; L. C., 41 stars; average corr.						±0.25	±0.32							
								22.9	6	+ .15	22.0	+ .18	21.2	+ .22
Total, 45 stars. Mean φ						25.49	25.49							
								Av.		±0.20	Av.	±0.19	Av.	±0.11
Probable error of φ from one star						±0.23	±0.28							
Probable error, observation						±0.14	±0.20	Obs. − c.		± .15		± .14		± .09
Probable error, B. J. Declination						±0.18	±0.19							

TABLE XXVI. The observed corrections, for both Equatorial and Circumpolar stars, may be here combined. Each series is given the same weight, in the respective groups; the 2-hour groups having been made up of 6 Equatorial stars, and of 6 or 7 separate culminations of Circumpolar stars.

For the systematic variation, with respect to Right Ascension, the following expression is made up of the means of the coefficients obtained for each 2-hour series:

$$\text{Observed correction to B. J. Decl.} = -0''.14 \sin \alpha + 0''.06 \cos \alpha;$$

and the average observed and computed corrections are given, with the average difference, (Obs.—comp.), at the foot of the respective columns:

TABLE XXVI.—MEAN OF EQUATORIAL AND CIRCUMPOLAR CORRECTIONS.

2 Hours.		Comp.	Obs. - C.	4 Hours.		Comp.	Obs. - C.	6 Hours.		Comp.	Obs. - C.
h	″	″	″	*h*	″	″	″	*h*	″	″	″
1	-0.11	+0.02	-0.13								
				2	-0.09	-0.02	-0.07				
3	- .06	- .06	.00					3	-0.11	-0.06	-0.05
5	- .16	- .12	- .04								
				6	- .07	- .14	+ .07				
7	+ .01	- .16	+ .17								
9	- .24	- .14	- .10					9	- .11	- .14	+ .03
				10	- .17	- .12	- .05				
11	- .10	- .10	.00								
13	+ .04	- .02	+ .06								
				14	+ .02	+ .02	.00				
15	.00	+ .06	- .06					15	+ .06	+ .06	.00
17	+ .14	+ .12	+ .02								
				18	+ .17	+ .14	+ .03				
19	+ .20	+ .16	+ .04								
21	+ .14	+ .14	.00					21	+ .16	+ .14	+ .02
				22	+ .14	+ .12	+ .02				
23	+ .13	+ .10	+ .03								
Av.	±0.11	±0.10	±0.05	Av.	±0.11	±0.09	±0.04	Av.	±0.11	±0.10	±0.03

Observed Correction to B. J. Declinations = $-0''.14 \sin \alpha + 0''.06 \cos \alpha$

TABLE XXVII.—LATITUDE RESULTS BY GROUPS.

In order to present the material in a convenient form for the discussion of Latitude Variation, the individual results have been here combined in groups, containing on the average four nights each. The groups include, in general, nights upon which the same program of stars has been observed, and the dates will thus be, usually, near each other. The mean date of the group, with its corresponding mean R. A., is given in the table.

Each night has been corrected for the reduction $(\varphi - \varphi_0)$, *computed* by CHANDLER's elements; and the original mean φ, and the φ_0 of the groups are given.

The column $\Delta\varphi_0$, taken in the sense (mean—group), includes the effect due to errors of observation, and to errors of B. J. Declinations. Its sign indicates the *correction* to B. J. The application of $(\varphi - \varphi_0)$ has evidently improved the separate groups.

Since the groups contain very nearly the same stars, some variation being due to omissions, the probable error of observation can be deduced, by comparison of each night with the group mean. This p. e. will be nearly independent of errors of Declination, and of graduation.

For a determination of φ_0, upon one night, the p. e. of observation is $\pm 0''.125$. The p. e. of observation, for the mean of 14 stars, should be $\pm 0''.06$; leaving $\pm 0''.11$ for the p. e. of the zenith reading, in agreement with the value found by direct discussion of the Nadir readings, Table VI.

The probable error of the Declinations, for a group of 14 stars, may now be found by deducting the p. e. of observation, $\pm 0''.125$, from the p. e. of φ_0 for one night in the consecutive series, $\pm 0''.160$. Also, by here deducting the p. e. of observation for four nights, $\pm 0''.07$, from the p. e. of φ_0 by groups. The result in both cases is $\pm 0''.10$ for the p. e. of the Declinations.

Since this value is much larger, than could properly be anticipated from the combined accidental errors of Declination, $\pm 0''.2$ per star, there is thus indirect evidence of the existence of systematic errors.

The results of this combination of φ have been plotted, for a graphical presentation of the Variation. While both maxima and minima were indicated in the curve, it was evident that there was a decided annual variation, independent of that deduced by CHANDLER'S elements. In the last, the annual and fourteen month terms should nearly balance, throughout this series of observations. The explanation of this deviation, may be sought in the systematic errors.

Both the tables following have been tested, by the application to φ_0, of the systematic corrections to B. J. Declinations, derived in Tables XXIV and XXV, from individual stars. No improvement in the residuals, and probable errors, was effected.

The tables have also been tested by use of the corrections, derived by Doctor CHANDLER, for the Declinations of the Fundamental Catalogue; and published in the Astronomical Journal, Vol. XIII, No. 296. The result was the same. The two sets of corrections are somewhat similar in effect, but these groups of observed values are in neither case improved, by the introduction of the derived corrections.

The groups extend over four to five hours in Right Ascension, for which the appropriate corrections have been used. It may easily be, that accidental errors, and systematic error from other sources, effectively mask the systematic errors of Declination.

TABLE XXVII.—LATITUDE RESULTS BY GROUPS.

Mean Date.	R. A.	φ	φ_0	$\Delta\varphi_0$	Mean Date.	R. A.	φ	φ_0	$\Delta\varphi_0$
	h	"	"	"		*h*	"	"	"
Sept. 18, 1893 E	20.9	25.71	25.70	−0.13	Feb. 23, 1895 W	9.0	25.74	25.66	−0.09
Oct. 5	22.5	.50	.51	+ .06	Mar. 27	11.0	.81	.76	− .19
Oct. 13	23.1	.75	.77	− .20	Apr. 13	11.9	.53	.51	+ .06
Nov. 8	0.8	.33	.38	+ .19	Apr. 29	13.6	.37	.37	+ .20
Dec. 10	3.6	.35	.41	+ .16	May 15	15.2	.52	.56	+ .01
Jan. 11, 1894 E	4.8	.60	.66	− .09	May 24	16.2	.66	.72	− .15
Feb. 7	6.2	.77	.81	− .24	July 17	18.4	.53	.66	− .09
Mar. 3	8.2	.57	.60	− .03	July 23	18.8	.40	.54	+ .03
Mar. 20	8.8	.59	.61	− .04	Aug. 3	20.4	.34	.48	+ .09
Apr. 4	11.6	.59	.60	− .03	Aug. 16	21.4	.54	.68	− .11
Apr. 15	12.6	.19	.20	+ .37	Sept 13, 1895 E	22.2	.35	.48	+ .09
May 4	14.1	.46	.46	+ .11	Oct. 10	2.0	.52	.60	− .03
June 2	16.0	.63	.63	− .06	Nov. 17	5.0	.53	.52	+ .05
June 23	17.4	.26	.27	+ .30	Jan. 21, 1896 E	8.3	26.02	.84	− .27
July 9	18.1	.51	.52	+ .05	Apr. 8	11.8	.79	.63	− .06
July 19	20.8	.30	.31	+ .26	June 10	17.2	.95	26.00	− .43
Oct. 3, 1894 W	22.9	.31	.31	+ .26	June 19	18.5	.77	.85	− .28
Oct. 15	0.5	.51	.50	+ .07					
Nov. 1	1.5	.36	.34	+ .23	40 groups.	Mean,	25.56	25.57	
Nov. 14	4.3	.52	.49	+ .08					
Jan. 1, 1895 W	5.6	.55	.48	+ .09	P. E. one group		±.130	±.117	
Jan. 30	6.8	.84	.76	− .19	φ_0, one night (p. e. obs.),			±.125	
Feb. 3	8.0	.80	.72	− .15	P. E. Decl. of group				±0.10

TABLE XXVIII.—LATITUDE RESULTS, SEPARATE PROGRAMS.

In the groups of this table, the nights are selected from separate programs. While the programs overlap in many cases, there will be a much larger number of stars included, and the effect of accidental error is accordingly diminished. The dates are often widely separated, and the range in Right Ascension is large.

In this table, and the preceding, the rejection of one large residual, (four times the probable error), would diminish the p. e. of the groups by 0″.01.

The probable error of a latitude determination, based upon four nights observation, with distinct stars on each night, does not exceed ±0″.09. Of this amount, ±0″.07 may be ascribed to the accidental error of observation, and ±0″.06 remains for the probable error of Declination.

TABLE XXVIII.—LATITUDE RESULTS BY GROUPS. SEPARATE PROGRAMS.

Dates.	φ	φ_0	$\Delta\varphi_0$
1893.	″	″	″
Sept. 13, Sept. 14, Oct. 2, Oct. 11,	25.55	25.55	+.02
15, 20, 3, 12,	.63	.64	−.07
22, 25, 5, 13, Nov. 2,	.76	.78	−.21
Oct. 10, Oct. 17, Nov. 3, 7,	.58	.61	−.04
Nov. 8, Nov. 13, Dec. 6, Dec. 9,	.28	.33	+.24
1894.			
14, Dec. 11, Jan. 10, Feb. 1,	.52	.57	.00
Dec. 19, Jan. 11, Feb. 2, 26,	.53	.58	−.01
Jan. 12, Feb. 13, 28, Mar. 14,	.60	.64	−.07
Feb. 14, Mar. 12, Mar. 21, April 3,	.60	.62	−.05
Mar. 22, April 4, Apr. 9, 30,	.44	.44	+.13
23, 5, 16, May 2,	.52	.52	+.05
April 17, May 7, May 22, June 20,	.52	.52	+.05
18, 9, 23, July 5,	.30	.30	+.27
June 8, June 21, July 6, 16,	.36	.37	+.20
19, 25, 11, 18,	.35	.36	+.21
26, July 13, 20, 23,	.44	.45	+.12
1894.			
Oct. 3, Oct. 10, Oct. 25, Nov. 8,	.42	.41	+.16
4, 12, 29, 14,	.31	.30	+.27
5, 16, Nov. 5, 16,	.43	.42	+.15
9, 22, 6, 19,	.55	.53	+.04
1895.			
Nov. 23, Jan. 28, Feb. 1, Feb. 18,	.59	.52	+.05
Dec. 13, 30, 2, 20,	.75	.68	−.11
Jan. 25, 31, 4, 27,	.79	.71	−.14

Dates.	φ	φ_0	$\Delta\varphi_0$
1895.	″	″	″
Jan. 26, Feb. 5, Feb. 28, Mar. 4,	25.71	25.64	−.07
April 2, April 10, April 18, May 13,	.52	.51	+.06
5, 11, 22, 14,	.72	.71	−.14
8, 15, May 7, 16,	.55	.55	+.02
17, May 8, 17, 21,	.50	.52	+.05
May 22, July 15, July 22, July 30,	.45	.56	+.01
23, 16, 23, 31,	.58	.69	−.12
29, 17, 24, 26, Aug. 5,	.40	.52	+.05
July 19, 25, Aug. 8, 12,	.37	.51	+.06
Aug. 14, Sept. 4, Oct. 1, Nov. 7,	.47	.57	.00
16, 6, 7, 13,	.52	.61	−.04
21, 19, 9, 19,	.48	.56	+.01
1896.			
Sept. 23, Oct. 24, Dec. 9, Jan. 2,	.61	.59	−.02
Jan. 6, Mar. 10, June 8, June 16,	.83	.78	−.21
Feb. 7, 12, 10, 17,	.81	.75	−.18
12, April 2, 11, 19,	26.04	.98	−.41
May 7, May 11, 12, 22,	.80	.81	−.24
40 groups. Means	25.56	25.57	
P. E. one group	±.110	±.100	
φ_0 P. E. one night		±.140	
P. E. Decl. one group, separate programs			±0.07

THE LATITUDE. The value of the Normal Latitude, φ_0 derived from this series of Meridian Circle observations, for the mean epoch 1895.1, is +37° 20′ 25″.57. For the probable error of this value, the consecutive series of 162 nights, with p. e. of one night ±0″.16, gives the p. e. of mean φ_0 ±0″.013.

The series of 40 groups, with p. e. of one group ±0″.09, gives the p. e. of mean φ_0 ±0″.014.

The comparison of results for individual stars, without taking into account the Variation, gives the p. e. of φ from one star, ±0″.24. The final Latitude depends upon the observation of 86 Equatorial stars, and 77 culminations of 45 Circumpolar stars. The p. e. of mean φ would be ±0″.02. There have been used about 1400 observations of B. J. Equatorial stars, and about 1000 of B. J. Circumpolar stars. The inclusion of the Zenith stars would increase the value of φ_0, and the final value may be adopted as:

37° 20′ 25″.6 (±0″.02)

LIST 5. The places of all the Standard Stars, observed in this series, are arranged here in order of Right Ascension. The places are given for 1895.0; and the correction for *proper motion* has been here included in the reduction. The epoch of observation will rarely differ more than one year, from that of the list. Of the values in the list, those of B. J. and C. T. have been taken directly from the Ephemerides; and that of N. A. 1897, when the star does not occur in earlier issues. In other cases, the proper motion has been derived, by deducting the computed precession from the tabulated Annual Variation. In these reductions, the proper motion has been taken from the first Ephemeris, in the order of reference of the list.

The page, containing the separate observations, with Ephemeris place and comparison, is given in the last column.

LIST 5.—OBSERVED PLACES OF 310 STARS. CORRECTED FOR PROPER MOTION.

Star.	R. A. 1895.0.			Decl. 1895.0.			Precession.		B. J.		303.		A. E.		N. A.		C. T.		P.
	h	*m*	*s*	°	′	″	*s*	″	*s*	″	*s*	″	*s*	″	*s*	″	*s*	″	
γ Pegasi	0	7	49.666	+14	35	58.87	+ 3.0846	+20.042	−.0007	−.013	....	....	−.0003	−.020	−.0008	−.013	.000	− .01	146
ρ Andromedae	0	12	50.416	+36	12	11.26	+ 3.1274	+20.021	....	....	....	....	−.0033	−.040	....	....	....	....	227
44 Piscium	0	20	1.189	+ 1	21	29.10	+ 3.0754	+19.975	....	....	....	....	−.0020	−.023	....	....	....	....	227
12 Ceti	0	24	40.812	− 4	32	15.41	+ 3.0612	+19.937	−.0003	−.009	−.0003	−.010	−.0001	−.002	−.0003	−.009	−.001	−.00	146
13 Ceti	0	29	50.590	− 4	10	15.47	+ 3.0600	+19.883	....	....	....	..	....	....	....	....	+.025	− .03	228
Piazzi 130	0	31	57.121	−25	20	42.92	+ 2.9846	+19.859	....	....	....	....	....	....	....	....	+.103	− .06	228
21 Cassiopeiae	0	38	42.846	+74	24	50.42	+ 3.8785	+19.766	−.0088	−.036	....	....	−.0118	−.020	....	....	....	....	192
Piazzi 189	0	42	52.462	+ 4	44	26.50	+ 3.0932	+19.702	....	....	....	....	....	....	....	....	+.039	−1.18	228
ν Andromedae	0	44	1.297	+40	30	24.92	+ 3.2906	+19.684	....	....	....	....	....	....	....	....	−.001	− .02	228
μ Andromedae	0	50	55.407	+37	55	46.60	+ 3.3023	+19.560	+.0141	+.049	....	....	+.0105	+.051	....	....	....	....	220
α Sculptoris	0	53	32.822	−29	55	30.76	+ 2.8944	+19.508	....	....	....	....	....	....	....	....	−.002	− .01	229
43 H. Cephei	0	54	24.619	+85	41	37.23	+ 7.2481	+19.490	+.0693	−.010	....	....	+.0636	.000	....	....	....	....	193
ε Piscium	0	57	29.573	+ 7	19	29.20	+ 3.1152	+19.425	−.0070	+.039	....	....	−.0056	+.023	−.0069	+.039	−.002	.00	147
μ Cassiopeiae	1	1	16.985	+54	24	18.60	+ 3.5661	+19.340	....	....	....	....	....	....	....	....	+.388	−1.54	229
β Andromedae	1	3	51.054	+35	3	49.94	+ 3.3306	+19.280	+.0144	−.084	....	....	+.0153	−.123	+.0146	−.084	+.016	− .08	220
f Piscium	1	12	22.907	+ 3	3	41.26	+ 3.0948	+19.060	....	....	....	....	−.0046	−.034	....	....	....	....	229
9 Ceti	1	18	46.486	− 8	43	31.46	+ 3.0035	+18.880	−.0068	−.196	−.0068	−.197	−.0063	−.220	−.0068	−.197	−.005	− .22	147
α Ursae Minoris	1	20	29.389	+88	44	52.46	+24.117	+18.829	+.1277	−.002	....	....	+.1383	−.002	+.1968	−.009	+.065	.00	193
38 Cassiopeiae	1	23	24.863	+69	43	26.68	+ 4.3601	+18.739	....	....	....	....	+.0258	−.075	....	....	....	....	229
40 Cassiopeiae	1	30	7.407	+72	30	16.66	+ 4.6977	+18.522	−.0050	−.016	....	....	....	....	....	....	....	....	194
υ Andromedae	1	30	37.953	+40	52	48.53	+ 3.5179	+18.505	....	....	....	....	−.0121	−.370	....	....	....	....	230
π Piscium	1	31	31.849	+11	36	15.02	+ 3.1793	+18.475	....	....	....	....	−.0045	+.048	....	....	....	....	230
ν Piscium	1	35	57.981	+ 4	57	21.97	+ 3.1197	+18.320	−.0035	+.005	−.0034	+.005	−.0013	−.001	−.0033	+.005	−.002	− .02	148
ξ Piscium	1	48	7.128	+ 2	40	8.80	+ 3.1009	+17.863	+.0004	+.020	+.0004	+.020	....	....	....	....	....	....	148
50 Cassiopeiae	1	54	27.959	+71	54	46.24	+ 5.0330	+17.603	−.0110	+.017	....	....	−.0114	+.023	....	....	....	....	194
ξ 1 Ceti	2	7	25.995	+ 8	21	14.23	+ 3.1762	+17.032	....	....	....	....	−.0015	−.015	....	....	....	....	230
ο Ceti	2	14	2.516	− 3	27	16.66	+ 3.0280	+16.720	−.0022	−.230	−.0022	−.231	....	....	....	....	+.003	− .24	149
ξ 2 Ceti	2	22	34.517	+ 7	59	21.31	+ 3.1820	+16.296	+.0011	−.001	....	....	+.0024	−.017	+.0011	−.002	+.002	− .02	149
36 H. Cassiopeiae	2	28	2.911	+72	21	31.11	+ 5.6032	+16.011	−.0045	+.011	....	....	....	....	....	....	....	....	195
Piazzi 123	2	30	19.347	+ 6	23	7.98	+ 3.1638	+15.892	....	....	....	....	....	....	....	....	+.118	+1.31	230

List 5.—Observed Places of 310 Stars. Corrected for Proper Motion.

Star.	R. A. 1895.0.			Decl. 1895.0.			Precession.		B. J.		303.		A. E.		N. A.		C. T.		P.
	h	m	s	°	′	″	s	″	s	″	s	″	s	″	s	″	s	″	
δ Ceti	2	34	5.976	− 0	7	28.53	+ 3.0708	+15.688	+.0004	−.007	+.0004	−.007	+.0024	−.007	....	....	....	....	150
β Fornacis	2	44	41.804	−32	50	50.17	+ 2.5044	+15.094	....	....	....	....	....	....	....	....	+.007	+ .15	231
σ Arietis	2	45	41.673	+14	38	57.15	+ 3.3038	+15.039	....	....	....	....	+.0015	−.048	−.0002	−.018	....	....	231
η Eridani	2	51	17.837	− 9	18	58.71	+ 2.9235	+14.707	+.0037	−.206	+.0038	−.215	....	....	....	....	....	....	150
47 H. Cephei	2	52	7.669	+79	0	12.28	+ 7.7674	+14.658	−.0112	+.015	....	....	−.0202	−.004	....	....	....	....	195
ε Arietis	2	53	12.381	+20	55	12.51	+ 3.4231	+14.593	....	....	....	....	−.0011	−.006	....	....	+.001	.00	231
α Ceti	2	56	47.412	+ 3	40	39.70	+ 3.1325	+14.376	−.0029	−.073	−.0028	−.072	−.0016	−.085	−.0028	−.073	−.001	− .11	150
τ 3 Eridani	2	57	45.764	−24	2	11.15	+ 2.6552	+14.317	....	....	−.0125	−.037	....	....	....	....	−.012	− .05	231
ρ Persei	2	58	26.787	+38	26	0.02	+ 3.8177	+14.275	+.0103	−.088	....	....	....	....	....	....	....	....	221
48 H. Cephei	3	6	59.910	+77	20	54.72	+ 7.4103	+13.739	+.0029	−.045	....	....	+.0164	−.052	....	....	....	....	195
ζ Arietis	3	8	51.871	+20	39	18.41	+ 3.4425	+13.620	....	....	....	....	−.0022	−.084	....	....	....	....	232
ο Tauri	3	19	9.692	+ 8	39	32.96	+ 3.2285	+12.945	−.0052	−.068	....	....	....	....	−.0056	−.071	....	....	151
ε Eridani	3	27	59.008	− 9	48	50.13	+ 2.8905	+12.345	−.0675	+.011	−.0676	+.012	−.0666	+.031	−.0676	+.009	−.063	− .03	151
5 H. Camelop.	3	39	16.405	+71	0	29.53	+ 6.2475	+11.553	−.0017	−.051	....	....	−.0002	−.049	....	....	....	....	196
ξ Persei	3	52	9.041	+35	29	20.06	+ 3.8812	+10.616	−.0006	−.013	....	....	....	....	....	....	....	....	221
ν Tauri	3	57	34.184	+ 5	41	52.18	+ 3.1874	+10.210	+.0001	−.009	+.0001	−.009	....	....	....	....	....	....	152
A 1 Tauri	3	58	29.170	+21	47	41.06	+ 3.5337	+10.141	....	....	....	....	+.0071	−.082	+.0055	−.060	....	....	232
Groombridge 750	4	3	39.151	+85	16	39.82	+17.215	+ 9.748	+.0024	+.015	....	....	....	....	....	....	+.021	+ .06	196
ο 1 Eridani	4	6	44.345	− 7	6	41.88	+ 2.9257	+ 9.511	−.0006	+.085	−.0005	+.085	+.0014	+.085	−.0004	+.087	....	....	152
ο 2 Eridani	4	10	26.330	− 7	48	59.31	+ 2.9097	+ 9.225	....	....	....	....	....	....	....	....	−.144	−3.45	232
υ 4 Eridani	4	13	55.257	−34	3	18.12	+ 2.2642	+ 8.955	....	....	....	....	....	....	−.0005	+.010	....	....	232
d Eridani	4	20	5.567	−34	15	39.57	+ 2.2472	+ 8.467	....	....	....	....	....	....	....	....	+.004	+ .03	233
m Persei	4	26	1.548	+42	50	21.41	+ 4.2095	+ 7.993	....	....	....	....	+.0021	−.019	....	....	....	....	233
ν Eridani	4	31	4.331	− 3	34	2.65	+ 2.9954	+ 7.587	−.0023	+.009	−.0022	+.009	....	....	....	....	....	....	153
Groombridge 848	4	34	42.231	+75	44	57.75	+ 7.9759	+ 7.292	+.0096	−.132	....	....	....	....	....	....	....	....	197
μ Eridani	4	40	15.107	− 3	26	50.74	+ 2.9969	+ 6.838	−.0002	−.002	−.0002	−.003	....	....	−.0001	−.004	....	....	153
π 1 Orionis	4	44	8.380	+ 6	46	40.04	+ 3.2229	+ 6.517	....	....	....	....	....	....	+.0298	+.016	+.037	− .01	233
i Tauri	4	45	13.839	+18	39	39.25	+ 3.5003	+ 6.426	....	....	....	....	+.0056	−.045	....	....	....	....	233
π 5 Orionis	4	48	46.859	+ 2	16	6.38	+ 3.1230	+ 6.132	−.0004	−.007	−.0004	−.008	....	....	....	....	....	....	153
11 Orionis	4	58	34.092	+15	15	27.04	+ 3.4242	+ 5.311	....	....	....	....	+.0006	−.039	....	....	....	....	234
β Eridani	5	2	41.259	− 5	13	20.99	+ 2.9543	+ 4.962	−.0066	−.059	−.0067	−.065	−.0056	−.058	....	....	....	....	154
19 H. Camelop.	5	5	15.127	+79	6	34.73	+ 9.8237	+ 4.746	−.0372	+.144	....	....	....	....	....	....	....	....	198
μ Leporis	5	8	12.876	−16	19	48.13	+ 2.6910	+ 4.494	....	....	....	....	....	....	+.0001	−.016	....	....	234
β Orionis	5	9	29.431	− 8	19	23.89	+ 2.8818	+ 4.384	−.0012	+.005	−.0012	+.006	−.0002	−.011	−.0012	+.003	.000	− .01	154
λ Aurigae	5	11	45.236	+40	0	19.34	+ 4.1696	+ 4.190	....	....	....	....	....	....	....	....	+.047	− .66	234
ο Colombae	5	13	41.863	−34	59	53.80	+ 2.1556	+ 4.024	....	....	....	....	....	....	....	....	+.004	− .33	234
γ Orionis	5	19	29.939	+ 6	15	15.47	+ 3.2168	+ 3.526	−.0019	−.015	....	....	....	....	....	....	+.003	− .03	155
Groombridge 966	5	25	40.950	+74	58	24.80	+ 7.9966	+ 2.991	+.0004	−.024	....	....	+.0081	+.019	....	....	....	....	198
χ Aurigae	5	25	53.572	+32	6	50.38	+ 3.9024	+ 2.972	....	....	....	....	+.0030	+.021	....	....	....	....	235
Groombridge 944	5	28	20.975	+85	8	36.13	+18.658	+ 2.760	....	....	....	....	+.0280	+.013	....	....	....	....	235

LIST 5.—OBSERVED PLACES OF 310 STARS. CORRECTED FOR PROPER MOTION.

Star.	R. A. 1895.0.			Decl. 1895.0.			Precession.		B. J.		303.		A. E.		N. A.		C. T.		P.
	h	m	s	°	′	″	s	″	s	″	s	″	s	″	s	″	s	″	
ε Orionis	5	30	53.090	− 1	16	9.38	+ 3.0432	+ 2.541	− .0018	+ .006	− .0017	+ .006	− .0007	.000	− .0017	+ .004	− .001	− .01	155
ζ Orionis m.	5	35	27.633	− 1	59	54.55	+ 3.0262	+ 2.142	....	...	....	....	...	....	...	....	+ .003	− .03	236
α Colombae	5	35	50.793	− 34	7	49.40	+ 2.1715	+ 2.110	....	....	....	....	+ .0014	− .046	+ .0051	− .035	+ .006	.00	236
κ Orionis	5	42	46.585	− 9	42	26.23	+ 2.8445	+ 1.505	− .0017	+ .004	− .0016	+ .004	+ .0005	+ .004	− .0016	+ .003	....	....	156
β Colombae	5	47	15.499	− 35	48	29.48	+ 2.1096	+ 1.114	....	....	....	....	....	....	+ .0020	+ .390	....	....	236
9 Aurigae	5	52	33.646	+ 37	12	17.87	+ 4.0870	+ 0.651	+ .0037	− .078	....	....	+ .0052	− .089	....	....	+ .005	− .11	221
γ Colombae	5	53	48.853	− 35	17	41.68	+ 2.1266	+ 0.542	...	...	....	....	....	....	....	....	.000	+ .01	236
ν Orionis	6	1	34.587	+ 14	46	50.17	+ 3.4253	− 0.138	− .0003	− .013	....	....	+ .0022	− .030	− .0002	− .015	+ .002	− .02	156
22 H. Camelop.	6	7	16.530	+ 69	21	22.19	+ 6.6194	− 0.636	− .0010	− .111	....	....	− .0025	− .118	....	....	....	....	199
ζ Canis Majoris	6	16	16.936	− 30	1	1.36	+ 2.3022	− 1.423	....	....	....	....	....	....	− .0020	− .002	....	....	237
8 Monocerotis	6	18	12.236	+ 4	38	45.39	+ 3.1810	− 1.591	− .0012	+ .010	....	....	....	....	....	...	....	....	157
ν Geminorum	6	22	43.680	+ 20	16	41.91	+ 3.5641	− 1.986	....	....	....	....	− .0011	− .022	....	....	....	....	237
23 H. Camelop.	6	28	18.530	+ 79	40	37.63	+ 10.356	− 2.473	− .0256	− .657	....	....	....	....	....	....	....	....	199
51 Aurigae	6	31	22.988	+ 39	28	58.61	+ 4.1637	− 2.738	− .0037	− .094	....	....	....	....	....	....	....	....	221
S Monocerotis	6	35	11.705	+ 9	59	33.24	+ 3.3054	− 3.067	− .0003	.000	....	...	....	....	....	...	...	....	157
18 Monocerotis	6	42	23.148	+ 2	31	36.77	+ 3.1305	− 3.688	− .0020	− .012	− .0019	− .012	....	....	....	....	....	....	158
51 H. Cephei	6	51	15.505	+ 87	12	43.33	+ 29.840	− 4.448	− .0409	− .051	....	....	− .0735	− .036	− .0550	− .072	− .027	− .08	200
Piazzi 305	6	56	50.009	+ 29	30	46.31	+ 3.8061	− 4.922	....	....	....	....	....	....	....	....	+ .014	− .72	237
22 Canis Majoris	6	57	32.179	− 27	47	4.86	+ 2.3903	− 4.981	....	....	....	....	....	....	− .0023	− .012	....	....	237
o 2 Canis Majoris	6	58	38.362	− 23	40	48.67	+ 2.5054	− 5.074	....	....	....	....	....	....	− .0016	+ .018	....	....	238
25 Camelop.	7	8	58.548	+ 82	36	46.01	+ 12.920	− 5.945	....	....	...	....	+ .0117	− .033	....	....	....	....	238
λ Geminorum	7	12	3.497	+ 16	43	45.96	+ 3.4547	− 6.201	− .0039	− .026	....	....	....	....	....	....	....	....	158
π Puppis	7	13	26.061	− 36	54	34.03	+ 2.1197	− 6.316	....	....	....	....	...	....	− .0010	+ .010	.000	+ .01	239
η Canis Majoris	7	19	56.472	− 29	5	54.80	+ 2.3734	− 6.854	...	....	....	....	....	....	− .0020	+ .014	....	....	239
β Canis Minoris	7	21	27.384	+ 8	30	2.42	+ 3.2600	− 6.979	− .0042	− .030	....	....	− .0005	− .036	− .0043	− .032	− .002	− .04	159
25 Monocerotis	7	32	3.450	− 3	52	36.48	+ 2.9892	− 7.838	− .0080	+ .031	− .0060	+ .037	....	....	....	....	....	....	159
ξ Navis	7	44	52.690	− 24	35	48.02	+ 2.5244	− 8.859	....	....	....	....	....	....	− .0018	+ .022	+ .002	+ .01	239
9 Navis	7	46	54.561	− 13	37	11.02	+ 2.7833	− 9.018	....	....	− .0064	− .340	....	....	....	....	− .005	− .33	239
φ Geminorum	7	47	4.280	+ 27	2	14.40	+ 3.6817	− 9.030	....	....	....	....	− .0025	− .025	....	....	....	....	240
Groombridge 1374	7	47	37.397	+ 74	11	51.89	+ 7.2850	− 9.075	− .0109	− .034	....	....	− .0093	− .033	....	....	....	....	201
B. A. C. 2320	7	52	30.735	+ 88	56	47.43	+ 67.178	− 9.453	....	....	....	....	....	....	....	....	− .348	+ .01	240
ω 1 Cancri	7	54	34.695	+ 25	40	48.07	+ 3.6367	− 9.608	....	....	....	....	− .0002	+ .004	....	....	....	....	241
ζ Argus	7	59	53.598	− 39	42	28.16	+ 2.1109	− 10.019	....	....	....	....	....	....	− .0030	+ .039	....	....	241
3 Ursae Majoris	8	2	21.676	+ 68	46	58.04	+ 6.0368	− 10.205	....	....	....	....	+ .0055	+ .002	.. .	....	....	....	241
ζ Canis pr.	8	6	11.410	+ 17	57	50.70	+ 3.4420	− 10.491	....	....	....	....	+ .0039	− .136	....	....	....	....	241
Bradley 1147	8	6	20.814	+ 76	4	36.77	+ 7.6664	− 10.504	+ .0033	.000	...	....	....	....	....	.. .	....	....	201
β Cancri	8	10	49.234	+ 9	30	32.06	+ 3.2611	− 10.835	− .0044	− .041	....	....	− .0030	− .044	− .0044	− .043	− .002	− .05	160
Bradley 1197	8	20	24.831	− 3	33	50.84	+ 3.0045	− 11.532	− .0058	+ .007	− .0058	+ .009	− .0047	+ .006	....	....	....	....	160
Groombridge 1450	8	26	5.396	+ 38	22	34.44	+ 3.9234	− 11.934	− .0151	− .208	....	....	....	....	....	....	....	....	222
δ Hydrae	8	32	5.844	+ 6	4	10.95	+ 3.1846	− 12.352	....	....	....	....	....	....	....	....	− .006	.00	242

LIST 5.—OBSERVED PLACES OF 310 STARS. CORRECTED FOR PROPER MOTION.

Star.	R. A. 1895.0.			Decl. 1895.0.			Precession.		B. J.		303.		A. E.		N. A.		C. T.		P.
	h	m	s	°	′	″	s	″	″	s	s	″	s	″	s	″	s	″	
σ Hydrae	8	33	16.188	+ 3	42	35.53	+ 3.1404	− 12.433	....	...	....	....	+ .0051	− .021	....	....	....	....	242
γ Cancri	8	37	12.604	+ 21	50	45.17	+ 3.4874	− 12.703	....	....	....	....	− .0077	− .043	− .0088	− .034	...	....	242
α Pyxis	8	39	22.429	− 32	48	29.88	+ 2.4109	− 12.848	....	....	....	....	....	....	....	....	.000	.00	242
ε Hydrae	8	41	12.923	+ 6	48	14.22	+ 3.1942	− 12.972	− .0135	− .023	....	....	− .0128	− .052	− .0135	− .024	− .011	− .04	161
α Cancri	8	52	44.693	+ 12	15	50.30	+ 3.2846	− 13.725	+ .0010	− .022	....	....	....	....	+ .0008	− .023	+ .002	− .04	161
B. A. C. 3097	8	59	51.069	+ 38	52	18.00	+ 3.8351	− 14.170	....	....	....	....	....	....	....	....	+ .006	− .06	243
κ Cancri	9	2	3.595	+ 11	5	26.00	+ 3.2562	− 14.307	....	....		....	− .0009	− .002	− .0028	+ .008	+ .001	.00	243
9 Hydrae	9	8	54.097	+ 2	45	25.67	+ 3.1164	− 14.720	+ .0078	− .309	+ .0075	− .308	+ .0094	− .315	....	....	....	....	162
1 H. Draconis	9	22	6.323	+ 81	47	24.17	+ 8.9629	− 15.478	− .0173	− .020	....	....	− .0071	− .020	....	....	....	....	203
ψ Argus	9	26	33.867	− 40	0	26.67	+ 2.3763	− 15.724	....	....	....	....	....	..	..	....	− .016	+ .06	243
ο Leonis	9	35	32.810	+ 10	22	11.35	+ 3.2168	− 16.200	− .0104	− .018	....	....	− .0104	− .039	− .0104	− .020	− .011	− .04	162
6 Sextantis	9	45	56.585	− 3	45	5.21	+ 3.0242	− 16.718	+ .0005	− .014	+ .0005	− .015	....	....	....	....	....	....	163
Groombridge 1586	9	48	59.597	+ 73	22	42.52	+ 5.4952	− 16.865	− .0229	− .041	....	....	....	....	....	....	....	....	203
π Leonis	9	54	39.890	+ 8	32	52.52	+ 3.1771	− 17.128	− .0040	− .011	....	....	− .0032	− .026	− .0041	− .013	− .001	− .03	163
υ 2 Hydrae	10	0	0.690	− 12	33	20.63	+ 2.9238	− 17.366	....	....	− .0034	+ .037	....	....	....	....	+ .002	+ .09	243
32 Ursae Majoris	10	10	24.494	+ 65	37	54.91	+ 4.4306	− 17.803	....	....	....	....	− 0162	− .025	....	....	....	....	244
γ 1 Leonis	10	14	11.031	+ 20	22	21.44	+ 3.2937	− 17.953	....	....	....	....	+ .0203	− .145	+ .0208	− .138	+ .021	− .15	244
B. A. C. 3495	10	14	21.679	+ 84	47	7.18	+ 9.5878	− 17.960	....	....	....	....	....	....	....	....	− .106	+ .06	244
9 H. Draconis	10	26	9.980	+ 76	15	13.76	+ 5.2481	− 18.394	− .0150	− .005	....	....	− .0006	− .018	....	....	....	....	204
37 Sextantis	10	40	37.672	+ 6	55	35.71	+ 3.1277	− 18.862	....	....	....	.	....	...	..	....	− .001	− .06	245
1 Leonis	10	43	44.282	+ 11	6	2.59	+ 3.1583	− 18.952	− .0015	− .020	....	....	− .0002	− .029	− .0016	− .022	− .001	− .01	164
α Crateris	10	54	39.484	− 17	44	23.29	+ 2.9523	− 19.243	....	....	....	..	....	....	....	....	− .033	+ .15	245
d Leonis	10	55	8.272	+ 4	10	52.40	+ 3.0999	− 19.256	...	....	....	....	....	....	− .0018	− .012	...	...	245
χ Leonis	10	59	36.064	+ 7	54	13.25	+ 3.1210	− 19.360	− .0255	− .022	....	....	....	....	− .0256	− .023	− .023	− .07	164
p 3 Leonis	11	1	32.899	+ 2	31	31.50	+ 3.0875	− 19.403	....	....	....	....	− .0279	− .086	....	....	....	....	245
σ Leonis	11	15	43.324	+ 6	36	17.26	+ 3.1024	− 19.680	− .0071	.000	....	...	....	....	....	..	....	..	165
83 Leonis	11	21	26.446	+ 3	35	7.05	+ 3.0866	− 19.768	...	....	...	....	....	....	....	...	− .051	+ .16	246
τ Leonis	11	22	32.247	+ 3	26	4.19	+ 3.0857	− 19.785	....	....	....	..	+ .0003	− .022	− .0011	− .007	..	...	246
λ Draconis	11	25	10.131	+ 69	54	38.09	+ 3.6260	− 19.821	− .0074	− .027	....	....	− .0107	− .021	− .0090	− .029	− .007	− .06	205
υ Leonis	11	31	34.369	− 0	14	38.83	+ 3.0719	− 19.898	− .0018	+ .047	....	....	− .0006	+ .035	− .0018	+ .046	.000	+ .01	165
ζ Crateris	11	39	26.442	− 17	46	1.66	+ 3.0342	− 19.972		..	+ .0010	− .009	...	...	....	....	+ .001	− .01	246
β Virginis	11	45	13.525	+ 2	21	23.09	+ 3.0762	− 20.011	+ .0481	− .262	+ .0481	− .262	....	....	....	....	+ .049	− .30	166
Groombridge 1830	11	46	55.631	+ 38	28	19.11	+ 3.1331	− 20.020	...	....	....	....	....	....	...	...	+ .344	− 5.70	246
π Virginis	11	55	29.528	+ 7	11	59.37	+ 3.0759	− 20.049	....	....	....	....	− .0009	− .039	− .0028	− .017	− .001	− .04	247
ο Virginis	11	59	51.624	+ 9	18	58.01	+ 3.0727	− 20.054	− .0159	+ .049	...	....	− .0153	+ .039	....	....	− .012	+ .02	166
4 H. Draconis	12	7	16.632	+ 78	11	58.72	+ 2.8695	− 20.043	+ .0013	+ .025	....	....	+ .0097	+ .022	....	....	....	....	205
6 Ursae Minoris	12	14	21.980	+ 88	16	55.16	+ 0.2810	− 20.013	....	....	....	....	− .0700	+ .073	....	....	− .144	+ .06	247
η Virginis	12	14	32.008	− 0	4	59.72	+ 3.0727	− 20.012	− .0056	− .022	− .0064	− .022	− .0039	− .028	− .0056	− .023	− .005	− .03	167
κ Draconis	12	29	0.038	+ 70	22	1.30	+ 2.5997	− 19.893	− .0159	− .002	....	....	− .0108	+ .006	...	...	...	....	206
23 Com. Ber.	12	29	37.133	+ 23	12	26.96	+ 2.9987	− 19.885	....	....	....	....	....	....	..	...	+ .013	.00	248

List 5.—Observed Places of 310 Stars. Corrected for Proper Motion.

Star.	R. A. 1895.0.			Decl. 1895.0.			Precession.		B. J.		303.		A. E.		N. A.		C. T.		P.
	h	m	s	°	′	″	s	″	s	″	s	″	s	″	s	″	s	″	
f Virginis	12	31	22.841	− 5	15	11.46	+ 3.0894	− 19.865	....	....	....	....	....	....	....	....	− .002	− .08	248
γ Virginis m.	12	36	20.349	− 0	52	24.85	+ 3.0758	− 19.802	− .0385	+ .015	....	....	− .0373	− .005	....	....	....	....	167
31 Com. Ber.	12	46	35.012	+ 28	6	43.94	+ 2.9284	− 19 640	....	....	....	....	+ .0012	− .016	....	....	....	....	248
η Centauri	12	47	37.226	− 39	36	29.28	+ 3.3008	− 19.621	....	....	....	....	....	....	....	....	+ .002	− .04	248
32 H. Cam. seq.	12	48	20.948	+ 83	59	1.51	+ 0.4166	− 19.608	....	....	....	....	+ .0120	+ .013	....	....	....	....	249
δ Virginis	12	50	18.820	+ 3	58	5.29	+ 3.0524	− 19 570	− .0336	− .047	− .0335	− .049	....	....	− .0336	− .048	− .030	− .08	168
ε Virginis	12	56	56.947	+ 11	31	24.57	+ 3.0055	− 19.438	− .0192	+ .029	....	....	− .0175	+ .027	− .0191	+ .031	....	....	168
9 Virginis	13	4	30.762	− 4	58	42.19	+ 3.1049	− 19.264	− .0043	− .037	− .0042	− .037	− .0033	− .041	− .0043	− .037	− .002	− .04	169
61 Virginis	13	12	54.691	− 17	43	38.32	+ 3.2063	− 19.045	....	....	....	....	....	....	....	....	− .073	− 1.05	249
ι Centauri	13	14	41.611	− 36	9	31.34	+ 3.3854	− 18.997	....	....	....	....	....	....	− .0280	− .060	....	....	249
Groombridge 2001	13	23	27.334	+ 72	56	12.29	+ 1.5214	− 18.738	− .0024	− .023	....	....	....	....	....	....	....	....	207
ζ Virginis	13	29	20.509	− 0	3	32.60	+ 3.0732	− 18.548	− .0205	+ .056	− .0206	+ .056	− .0197	+ .040	− .0205	+ .056	− .017	+ .06	169
25 Canis Ven.	13	32	47.730	+ 36	49	44.46	+ 2.6782	− 18.431	....	....	....	....	....	....	....	....	.000	.00	250
m Virginis	13	36	6.008	− 8	10	23.53	+ 3.1508	− 18.316	....	....	− .0085	+ .046	− .0070	+ .037	....	....	− .008	.00	250
τ Virginis	13	56	18.111	+ 2	3	9.82	+ 3.0492	− 17.526	− .0005	− .033	− .0004	− .033	....	....	− .0003	− .032	+ .002	− .06	170
π Hydrae	14	0	23.446	− 26	10	35.33	+ 3.4021	− 17.349	....	....	....	....	.0000	.000	+ .0019	− .170	....	....	250
9 Centauri	14	0	30.135	− 35	51	12.22	+ 3.5575	− 17.344	....	....	....	....	....	....	− .0430	− .499	− .040	− .65	250
4 Ursae Minoris	14	9	15.401	+ 78	2	27.28	− 0.3012	− 16.947	− .0138	+ .036	....	....	− .0130	+ .042	....	....	....	....	207
ι Virginis	14	10	30.460	− 5	29	58.11	+ 3.1419	− 16.889	− .0031	− .417	− .0030	− .417	....	....	....	....	....	....	170
λ Virginis	14	13	25.624	− 12	53	15.84	+ 3.2408	− 16.748	....	....	....	....	− .0021	+ .033	....	....	.000	+ .03	251
f Boötis	14	21	34.277	+ 19	41	56.58	+ 2.7954	− 16.347	....	....	....	....	....	....	− .0056	+ .030	....	....	251
φ Virginis	14	22	47.475	− 1	45	25.68	+ 3.0965	− 16.285	− .0102	− .002	− .0100	− .001	....	....	....	....	....	....	170
5 Ursae Minoris	14	27	44.746	+ 76	9	46.29	− 0.1888	− 16.028	....	....	....	....	+ .0052	+ .016	....	....	....	....	251
μ Virginis	14	37	31.549	− 5	12	5.60	+ 3.1499	− 15.500	+ .0056	− .305	+ .0055	− .306	....	....	....	....	....	....	171
ε 2 Boötis	14	40	24.012	+ 27	31	1.26	+ 2.6240	− 15.339	....	....	....	....	− .0026	+ .011	− .0043	+ .002	− .003	.00	252
β Ursae Minoris	14	51	0.567	+ 74	35	4.19	− 0.2185	− 14.724	− .0077	− .005	....	....	− .0069	+ .004	− .0075	− .006	− .006	− .04	208
ξ 2 Librae	14	51	4.172	− 10	59	8.89	+ 3.2488	− 14.721	....	....	− .0019	+ .005	....	....	....	....	− .001	− .01	252
Piazzi 221	14	51	15.827	+ 14	52	14.50	+ 2.8313	− 14.709	− .0014	+ .020	....	....	....	....	....	....	....	....	171
Piazzi 212	14	51	20.030	− 20	56	29.97	+ 3.4204	− 14.705	....	....	....	....	....	....	....	....	+ .068	− 1.68	252
Groombridge 2283	15	11	3.840	+ 87	38	11.51	− 20.918	− 13.476	....	....	....	....	....	....	....	....	+ .089	+ .05	253
β Librae	15	11	21.331	− 8	59	43.23	+ 3.2294	− 13.459	− .0079	− .017	− .0078	− .018	− .0070	− .031	− .0077	− .016	− .006	− .02	172
η Coronae	15	18	51.974	+ 30	40	1.42	+ 2.4679	− 12.965	....	....	....	....	....	....	....	....	+ .012	− .18	253
γ Ursae Minoris	15	20	53.593	+ 72	12	27.21	− 0.1289	− 12.829	+ .0040	+ .019	....	....	− .0006	+ .017	....	....	+ .018	+ .05	208
ζ 1 Librae	15	22	20.030	− 16	21	0.98	+ 3.3756	− 12.732	....	....	− .0010	− .046	....	....	....	....	+ .003	− .05	253
κ Librae	15	35	53.767	− 19	20	18.07	+ 3.4520	− 11.794	....	....	....	....	....	....	....	....	− .002	− .10	254
α Serpentis	15	39	5.720	+ 6	45	22.17	+ 2.9432	− 11.568	+ .0079	+ .056	....	....	+ .0088	+ .036	+ .0080	+ .059	+ .009	+ .05	172
ε Serpentis	15	45	34.867	+ 4	47	38.18	+ 2.9792	− 11.099	+ .0068	+ .059	+ .0068	+ .058	+ .0083	+ .069	+ .0069	+ .061	....	....	173
λ Librae	15	47	14.283	− 19	51	10.74	+ 3.4765	− 10.978	....	....	....	....	....	....	....	....	.000	− .02	254
ζ Ursae Minoris	15	47	48.407	+ 78	7	2.56	− 2.2528	− 10.935	+ .0030	− .004	....	....	+ .0125	− .001	+ .0038	+ .005	+ .029	.00	209
π Scorpii	15	52	29.953	− 25	48	41.73	+ 3.6217	− 10.589	....	....	....	....	....	....	− .0034	− .033	....	....	254

List 5.—Observed Places of 310 Stars. Corrected for Proper Motion.

Star.	R. A. 1895.0.			Decl. 1895.0.			Precession.		B. J.		303.		A. E.		N. A.		C. T.		P.
	h	m	s	°	′	″	s	″	s	″	s	″	s	″	s	″	s	″	
49 Librae	15	54	25.994	−16	13	25.99	+ 3.4046	−10.445	....	....	....	....	....	....	....	....	−.041	−.36	254
ν 2 Scorpii	16	5	53.535	−19	11	15.53	+ 3.4813	− 9.577	....	....	....	....	....	....	....	....	+.001	−.02	255
Groombridge 2320	16	6	2.099	+68	5	12.20	+ 0.1518	− 9.566	....	....	....	....	−.0098	+.069	....	....	....	....	255
δ Ophiuchi	16	8	50.507	− 3	25	25.80	+ 3.1433	− 9.349	−.0049	−.137	−.0048	−.136	−.0032	−.143	−.0048	−.135	−.004	−.12	173
σ 1 Cor. Bor.*	16	10	44.571	+34	7	25.21	+ 2.2677	− 9.201	....	....	....	....	−.0228	−.040	....	....	−.023	−.04	255
19 Ursae Minoris	16	13	48.987	+76	8	30.77	− 1.7749	− 8.962	−.0050	+.003	....	....	....	....	....	....	....	....	209
σ Scorpii	16	14	48.331	−25	20	26.29	+ 3.6401	− 8.884	....	....	....	....	....	....	−.0022	−.007	.000	+.02	255
A Draconis	16	28	11.202	+68	59	43.04	− 0.1334	− 7.820	−.0090	+.036	....	....	+.0007	+.021	....	....	....	....	210
τ Scorpii	16	29	20.720	−27	59	52.66	+ 3.7284	− 7.727	....	....	....	....	....	....	−.0022	−.023	+.005	.00	256
ζ Ophiuchi	16	31	22.575	−10	21	15.39	+ 3.2988	− 7.563	−.0007	+.035	−.0006	+.036	+.0007	+.022	−.0006	+.038	....	....	174
η Herculis	16	39	17.752	+39	7	19.23	+ 2.0520	− 6.923	+.0028	−.077	....	....	+.0020	−.083	....	....	....	....	222
ε Scorpii	16	43	21.721	−34	6	8.89	+ 3.9276	− 6.581	....	....	....	....	....	....	−.0501	−.271	−.049	−.32	256
κ Ophiuchi	16	52	41.852	+ 9	32	18.22	+ 2.8576	− 5.803	−.0212	+.015	....	....	−.0199	−.007	−.0211	+.016	−.021	+.02	174
ε Ursae Minoris	16	56	43.594	+82	12	35.20	− 6.3289	− 5.465	+.0090	−.003	....	....	+.0147	−.003	+.0129	−.005	+.017	.00	210
d Herculis	16	57	43.755	+33	43	13.26	+ 2.2131	− 5.382	....	....	....	....	−.0016	+.002	....	....	....	....	256
A 1 Ophiuchi	17	8	53.411	−26	26	54.28	+ 3.7212	− 4.435	....	....	....	....	....	....	....	....	−.032	−1.14	256
α Herculis	17	9	51.544	+14	30	36.76	+ 2.7349	− 4.352	−.0019	+.030	....	....	−.0012	+.027	−.0018	+.032	.000	+.04	175
π Herculis	17	11	23.373	+36	55	39.10	+ 2.0903	− 4.222	−.0035	+.005	....	....	−.0010	+.009	....	....	−.001	+.04	222
ω Herculis	17	16	43.809	+32	36	10.72	+ 2.2328	− 3.763	....	....	....	....	....	....	....	....	+.011	−1.00	257
b Ophiuchi	17	19	57.435	−24	4	42.66	+ 3.6608	− 3.486	....	....	....	....	−.0014	−.131	....	....	....	....	257
d Ophiuchi	17	20	38.964	−29	46	18.00	+ 3.8261	− 3.426	....	....	....	....	....	....	....	....	−.002	−.20	257
σ Ophiuchi	17	21	18.259	+ 4	13	54.42	+ 2.9751	− 3.370	....	....	....	....	....	....	−.0017	+.017	....	....	257
υ Scorpii	17	23	37.504	−37	12	42.38	+ 4.0750	− 3.169	....	....	....	....	....	....	−.0038	−.028	....	....	258
λ Scorpii	17	26	28.663	−37	1	36.85	+ 4.0702	− 2.923	....	....	....	....	....	....	−.0013	−.048	....	....	258
α Ophiuchi	17	30	3.567	+12	38	11.90	+ 2.7754	− 2.612	+.0066	−.217	....	....	+.0076	−.237	+.0067	−.215	+.008	−.21	175
κ Scorpii	17	35	13.397	−38	58	32.44	+ 4.1479	− 2.164	....	....	....	....	....	....	.0000	−.030	−.002	+.02	258
β Ophiuchi	17	38	17.092	+ 4	36	41.01	+ 2.9653	− 1.897	−.0041	+.167	−.0042	+.166	....	....	−.0043	+.169	−.004	+.17	176
ψ Draco. Aus.	17	43	48.245	+72	12	1.17	− 1.0812	− 1.416	−.0002	−.268	....	....	+.0032	−.273	....	....	....	....	211
9 Herculis	17	52	39.105	+37	15	52.14	+ 2.0560	− 0.644	−.0023	+.019	....	....	−.0007	+.020	....	....	....	....	222
ν Ophiuchi	17	53	14.738	− 9	45	37.62	+ 3.3025	− 0.591	−.0021	−.097	−.0019	−.105	....	....	....	....	+.001	−.11	176
35 Draconis	17	54	8.877	+76	58	35.45	− 2.7040	− 0.512	+.0129	+.239	....	....	....	....	....	....	....	....	211
γ 2 Sagittarii	17	59	3.725	−30	25	30.10	+ 3.8577	− 0.082	−.0054	−.211	....	....	−.0060	−.218	−.0054	−.211	−.006	−.21	258
p 1 Ophiuchi	18	0	8.980	+ 2	31	26.71	+ 3.0143	+ 0.012	....	....	....	....	....	....	....	....	+.017	−1.09	259
72 Ophiuchi	18	2	22.256	+ 9	32	56.82	+ 2.8478	+ 0.208	−.0056	+.089	....	....	....	....	−.0056	+.091	....	....	177
δ Ursae Minoris	18	6	9.891	+86	36	45.19	−19.504	+ 0.540	+.0271	+.040	....	....	+.0259	+.051	+.0259	+.020	+.048	+.03	211
η Sagittarii	18	10	31.347	−36	47	34.96	+ 4.0713	+ 0.920	....	....	....	....	....	....	−.0100	−.040	....	....	259
δ Sagittarii	18	14	16.304	−29	52	20.66	+ 3.8390	+ 1.247	....	....	....	....	....	....	+.0014	−.029	+.001	−.05	259
η Serpentis	18	15	52.599	− 2	55	33.25	+ 3.1407	+ 1.389	−.0400	−.677	−.0399	−.678	−.0383	−.676	−.0400	−.674	−.037	−.65	177
ε Sagittarii	18	17	12.125	−34	26	1.96	+ 3.9865	+ 1.504	....	....	....	....	....	....	−.0040	−.138	−.003	−.12	259
λ Sagittarii	18	21	29.426	−25	28	46.04	+ 3.7069	+ 1.878	....	....	....	....	−.0043	−.210	−.0055	−.196	....	....	260

*S. Prec. star. $\Delta\alpha = 0^s.185$; $\Delta\delta = 3''.80$. A. E. (mean).

LIST 5.—OBSERVED PLACES OF 310 STARS. CORRECTED FOR PROPER MOTION.

Star.	R. A. 1895.0.			Decl. 1895.0.			Precession.		B. J.		303.		A. E.		N. A.		C. T.		P.
	h	m	s	°	′	″	s	″	s	″	s	″	s	″	s	″	s	″	
χ Draconis	18	22	56.919	+72	41	14.28	− 1.1952	+ 2.001	+.1135	−.371	....	....	+.1151	−.371	....	....	....	....	212
I Aquilae	18	29	29.568	− 8	19	2.20	+ 3.2664	+ 2.573	....	....	....	....	−.0019	−.329	....	....	....	....	260
α Lyrae	18	33	22.937	+38	41	9.23	+ 2.0135	+ 2.909	+.0173	+.295	....	....	+.0179	+.274	+.0174	+.297	+.019	+ .28	223
φ Sagittarii	18	39	5.785	−27	5	53.92	+ 3.7467	+ 3.404	....	....	....	....	....	....	+.0014	−.019	+.002	− .01	260
ε Lyrae pr.	18	40	51.615	+39	33	36.88	+ 1.9858	+ 3.555	−.0022	+.080	....	....	....	....	....	....	....	....	223
β Lyrae	18	46	12.178	+33	14	27.11	+ 2.2142	+ 4.016	−.0007	+.017	....	....	+.0001	−.019	−.0008	+.018	−.006	− .03	223
50 Draconis	18	49	45.635	+75	18	36.38	− 1.9070	+ 4.320	....	....	....	....	−.0041	+.074	....	....	....	....	261
ξ 2 Sagittarii	18	51	27.938	−21	14	40.10	+ 3.5793	+ 4.465	....	....	....	....	....	....	−.0005	−.006	....	....	261
γ Lyrae	18	55	0.943	+32	32	44.46	+ 2.2440	+ 4.767	−.0018	+.011	....	....	+.0004	+.012	....	....	+.002	+ .02	225
ζ Sagittarii	18	55	55.890	−30	1	47.61	+ 3.8225	+ 4.845	....	....	....	....	....	....	−.0040	+.009	−.003	− .02	261
τ Sagittarii	19	0	23.089	−27	49	25.12	+ 3.7538	+ 5.222	....	....	....	....	....	....	−.0072	−.255	....	....	262
λ Aquilae	19	0	40.584	− 5	2	23.46	+ 3.1864	+ 5.247	−.0038	−.080	−.0038	−.079	....	....	....	....	−.001	− .07	177
ι Lyrae	19	3	33.257	+35	56	8.28	+ 2.1407	+ 5.491	−.0007	+.009	....	....	+.0006	+.008	....	....	....	....	225
d Sagittarii	19	11	29.500	−19	8	22.78	+ 3.5141	+ 6.154	....	....	−.0023	−.004	−.0022	−.018	....	....	....	....	262
9 Lyrae	19	12	43.373	+37	56	48.11	+ 2.0822	+ 6.257	−.0042	.000	....	....	−.0031	+.001	....	....	....	....	225
ω Aquilae	19	12	53.242	+11	24	22.33	+ 2.8164	+ 6.272	−.0014	+.025	....	....	....	....	−.0014	+.026	−.001	+ .06	178
τ Draconis	19	17	34.256	+73	9	37.49	− 1.0934	+ 6.659	−.0315	+.107	....	....	−.0268	+.108	....	....	....	....	212
b Aquilae	19	19	57.763	+11	43	11.36	+ 2.8120	+ 6.856	....	....	....	....	....	....	....	....	+.054	+ .69	262
δ Aquilae	19	20	12.227	+ 2	54	20.16	+ 3.0089	+ 6.875	+.0153	+.091	+.0153	+.092	+.0162	+.077	+.0153	+.093	+.016	+ .10	178
λ Ursae Minoris	19	28	4.935	+88	58	39.48	−66.363	+ 7.520	−.0504	−.006	....	....	−.0950	+.009	−.1970	−.050	−.048	+ .02	213
κ Aquilae	19	31	14.561	− 7	15	38.83	+ 3.2296	+ 7.774	....	....	−.0009	+.007	−.0010	.000	....	....	+.001	− .01	262
β Sagittarii	19	36	19.959	+17	13	58.44	+ 2.6941	+ 8.183	....	....	....	....	+.0014	−.028	....	....	....	....	263
15 Cygni	19	40	29.362	+37	6	2.54	+ 2.1573	+ 8.513	+.0064	+.042	....	....	....	....	....	....	....	....	225
γ Aquilae	19	41	16.026	+10	21	26.97	+ 2.8518	+ 8.575	−.0005	+.008	....	....	+.0004	−.008	−.0006	+.010	+.001	.00	179
β Aquilae	19	50	9.294	+ 6	8	41.00	+ 2.9450	+ 9.272	+.0007	−.473	....	....	+.0020	−.492	+.0006	−.472	+.002	− .48	179
c Sagittarii	19	56	12.156	−28	0	5.79	+ 3.6940	+ 9.737	....	....	....	....	+.0001	+.019	....	....	+.002	+ .02	263
τ Aquilae	19	59	0.599	+ 6	58	54.68	+ 2.9305	+ 9.952	....	....	....	....	+.0024	+.007	....	....	....	....	263
9 Aquilae	20	5	53.234	− 1	7	58.21	+ 3.0952	+10.469	−.0001	+.014	−.0001	+.014	+.0018	+.009	−.0001	+.016	+.003	.00	180
κ Cephei	20	12	25.291	+77	23	42.36	− 1.9351	+10.952	−.0014	+.014	....	....	+.0027	+.028	....	....	....	....	213
γ Cygni	20	18	27.571	+39	55	13.79	+ 2.1521	+11.391	−.0001	+.019	....	....	+.0017	−.008	....	....	+.001	+ .02	223
π Capricorni	20	21	18.675	−18	33	21.30	+ 3.4387	+11.595	....	....	....	....	+.0003	−.017	....	....	....	....	263
ε Delphini	20	28	11.785	+10	56	47.43	+ 2.8662	+12.081	−.0006	−.022	....	....	+.0009	−.021	−.0006	−.020	....	....	180
Groombridge 3241	20	30	27.663	+72	10	33.19	− 0.2209	+12.239	....	....	....	....	−.0028	−.020	....	....	....	....	264
ψ Capricorni	20	39	52.743	−25	38	53.37	+ 3.5645	+12.881	....	....	....	....	−.0047	−.162	....	....	−.005	− .16	264
ε Cygni	20	41	57.740	+33	34	37.07	+ 2.3978	+13.020	+.0280	+.335	....	....	+.0301	+.334	....	....	+.029	+ .33	224
ε Aquarii	20	41	59.534	− 9	52	48.26	+ 3.2498	+13.023	−.0002	−.027	−.0003	−.027	....	....	−.0003	−.025	....	....	181
3 Aquarii	20	42	11.841	− 5	24	43.47	+ 3.1688	+13.036	....	....	....	....	....	....	....	....	−.002	− .03	264
μ Aquarii	20	46	59.444	− 9	22	37.63	+ 3.2373	+13.352	....	....	....	....	+.0020	−.044	....	....	+.002	− .01	265
76 Draconis	20	50	10.796	+82	8	31.93	− 4.0638	+13.559	+.0142	+.008	....	....	....	....	....	....	....	....	214
ν Cygni	20	53	15.438	+40	45	46.04	+ 2.2341	+13.756	.0000	+.001	....	....	+.0003	−.018	....	....	....	....	224

List 5.—Observed Places of 310 Stars. Corrected for Proper Motion.

Star.	R. A. 1895.0.			Decl. 1895.0.			Precession.		B. J.		303.		A. E.		N. A.		C. T.		P.
	h	*m*	*s*	°	′	″	*s*	″	*s*	″	*s*	″	*s*	″	*s*	″	*s*	″	
ζ Microscopium	20	56	15.428	−39	2	29.47	+ 3.8516	+13.946	....	....	....	....	....	....	....	....	−.005	− .11	265
9 Capricorni	21	0	2.722	−17	39	0.17	+ 3.3733	+14.182	....	....	....	....	....	....	+.0040	− .052	....	....	265
61 Cygni pr.*	21	2	11.450	+38	13	58.48	+ 2.3353	+14.300	+.3443	+3.237	....	....	+.3482	+3.248	+.3442	+3.233	+.342	+3.30	225
Bradley 2777	21	7	35.860	+77	42	1.71	− 1.1168	+14.642	+.0068	+ .023	....	....	....	....	....	....	....	....	215
α Equulei	21	10	34.500	+ 4	48	49.75	+ 2.9968	+14.817	+.0021	− .078	+.0020	−.077	....	....	....	....	....	....	181
4 Piscium Aus.	21	11	34.313	−32	36	40.73	+ 3.6461	+14.877	....	....	....	....	....	....	....	....	+.001	− .04	265
σ Cygni	21	13	17.455	+38	57	16.40	+ 2.3541	+14.977	....	....	....	....	....	....	....	....	+.001	− .02	266
Groom. 3548	21	20	31.975	+86	36	7.72	−11.360	+15.391	....	....	....	....	....	....	....	....	+.043	+ .03	266
β Cephei	21	27	18.300	+70	5	59.56	+ 0.7902	+15.763	+.0012	− .012	....	....	+.0020	− .003	+.0008	− .003	+.002	− .04	215
ξ Aquarii	21	32	9.762	− 8	19	30.18	+ 3.1903	+16.023	....	....	....	....	+.0072	− .035	....	....	....	....	267
ε Pegasi	21	39	1.702	+ 9	23	37.04	+ 2.9450	+16.377	+.0008	+ .011	....	....	+.0017	− .006	+.0008	+ .013	+.004	+ .01	182
γ Grus	21	47	34.304	−37	51	31.83	+ 3.6402	+16.797	....	....	....	....	....	....	+.0050	− .020	+.006	− .02	267
μ Capricorni	21	47	34.326	−14	2	45.41	+ 3.2553	+16.797	....	....	....	....	+.0201	− .003	....	....	....	....	267
79 Draconis	21	51	33.222	+73	12	20.14	+ 0.7181	+16.984	....	....	....	....	+.0084	+ .032	....	....	....	....	268
20 Pegasi	21	55	58.385	+12	37	1.23	+ 2.9185	+17.188	+.0032	− .050	....	....	....	....	....	....	....	....	182
24 Cephei	22	7	47.329	+71	49	26.09	+ 1.1577	+17.696	+.0021	− .007	....	....	....	....	....	....	....	....	216
9 Aquarii	22	11	17.586	− 8	18	22.07	+ 3.1619	+17.839	+.0057	− .019	+.0056	−.018	+.0068	− .025	+.0055	− .018	+.008	− .02	183
γ Aquarii	22	16	13.967	− 1	54	59.07	+ 3.0922	+18.032	+.0068	+ .017	+.0068	+.017	+.0084	+ .019	+.0068	+ .019	+.010	+ .03	183
π Aquarii	22	19	54.873	+ 0	50	40.42	+ 3.0643	+18.171	....	....	....	....	+.0003	− .005	....	....	....	....	268
σ Aquarii	22	25	5.481	−11	12	55.09	+ 3.1793	+18.357	....	....	−.0011	−.036	−.0040	− .028	....	....	....	....	268
226 Cephei	22	30	25.620	+75	41	7.26	+ 1.0766	+18.540	....	....	....	....	−.0011	− .008	....	....	....	.	269
λ Aquarii	22	47	8.210	− 8	8	18.10	+ 3.1324	+19.049	−.0016	+ .040	−.0016	+.038	.0000	+ .034	−.0017	+ .040	−.004	+ .04	184
α Pegasi	22	59	31.778	+14	38	24.88	+ 2.9815	+19.358	+.0028	− .030	....	....	+.0038	− .050	+.0029	− .029	+.005	− .02	184
π Cephei	23	4	33.442	+74	49	11.33	+ 1.8922	+19.468	+.0038	− .041	....	....	....	....	....	....	....	....	216
φ Aquarii	23	8	53.063	− 6	36	54.37	+ 3.1069	+19.556	....	....	....	....	+.0017	− .192	....	....	....	....	269
γ Piscium	23	11	43.300	+ 2	42	30.53	+ 3.0594	+19.609	+.0487	+ .017	+.0487	+.018	....	....	+.0486	+ .018	+.050	− .01	185
γ Sculptoris	23	13	9.294	−33	6	15.17	+ 3.2495	+19.634	....	....	....	....	....	....	....	....	−.001	− .05	269
ο Cephei	23	14	18.706	+67	32	13.15	+ 2.4323	+19.655	....	....	....	....	+.0140	+ .018	....	....	....	....	270
κ Piscium	23	21	32.990	+ 0	40	50.82	+ 3.0700	+19.771	+.0041	− .102	+.0041	−.101	....	....	+.0041	− .101	+.007	− .10	185
9 Piscium	23	22	38.487	+ 5	48	8.09	+ 3.0506	+19.787	....	....	....	....	−.0093	− .056	....	....	....	....	270
β Sculptoris	23	27	20.471	−38	23	57.07	+ 3.2231	+19.849	....	....	....	....	....	....	....	....	+.005	.00	271
39 H. Cephei	23	27	49.042	+86	43	41.93	− 0.2006	+19.855	....	....	....	....	....	....	....	....	+.085	+ .01	270
ι Piscium	23	34	32.945	+ 5	3	25.78	+ 3.0595	+19.929	+.0234	− .443	+.0234	−.443	+.0248	− .443	+.0234	− .442	+.027	− .45	186
γ Cephei	23	35	2.276	+77	2	46.75	+ 2.4409	+19.933	−.0201	+ .135	....	....	−.0213	+ .144	−.0189	+ .127	−.018	+ .15	217
i 1 Aquarii	23	38	45.374	−18	51	35.08	+ 3.1149	+19.966	....	....	....	....	+.0015	− .005	....	....	....	....	271
Groom. 4163	23	49	43.260	+73	49	33.82	+ 2.8660	+20.032	....	....	....	....	+.0042	− .009	....	....	....	....	271
ω Piscium	23	53	55.128	+ 6	16	55.06	+ 3.0687	+20.046	+.0087	− .108	....	....	+.0100	− .115	+.0087	− .109	+.011	− .11	186
30 Piscium	23	56	34.514	− 6	35	51.75	+ 3.0749	+20.050	....	....	....	....	....	....	....	....	+.003	− .04	272
2 Ceti	23	58	21.643	−17	55	14.54	+ 3.0757	+20.052	....	....	.0000	+.006	....	....	....	....	+.001	+ .01	272
33 Piscium	23	59	57.634	− 6	17	42.16	+ 3.0726	+20.053	....	....	....	....	−.0018	+ .090	....	....	....	....	272

*C. T. has also the following star.

LIST 6. The following stars, fifty in number, have been observed, to furnish places as required for comparisons, made at this Observatory in general. The stars have been usually observed upon nights, when the regular series was in progress; but some have been taken upon extra nights. They have been reduced with B. J. stars as fundamental, and the reductions have ordinarily been made at once, to comply with the needs of observers. They are not printed, in the foregoing details, for standard stars.

The list is first given in the order of observation, with mean places for the year, the name of the object with which the star was compared, and the initials of the observer by whom the comparison was made.

The magnitudes, when given in quarters, are those noted at the Meridian Circle observation; when given in decimals, they are those of the Durchmusterung. The number gives the whole hours, minutes, and seconds of the Right Ascension, for 1900, in accordance with a general scheme for listing miscellaneous stars.

Observations up to the end of 1896 have been included here; and the Meridian Circle observation of Mercury, during its Transit upon the Sun in 1894, is appended:

LIST 6.—MERIDIAN CIRCLE OBSERVATIONS OF COMPARISON STARS.

No.	Mag.	R. A. 1893.0.	Decl. 1893.0.	Observations.	Object.
		h *m* *s*	° ′ ″		
221431	8.5	22 14 8.49	−18 0 4.1	Oct. 12, 13, 18	Eucharis (181) E. E. B.
221655	8.9	22 16 32.81	−17 13 31.0	Oct. 11, 16, 17	"
221951	9.5	22 19 29.13	−16 43 52.6	Oct. 12, 13, 18, 19	"
		R. A. 1894.0.	Decl. 1894.0.		
090646	8.0	9 6 22.73	+44 44 45.3	Mar. 14, 21, 22, 23	Comet *b* 1893, R. H. T.
093750	6.9	9 37 27.77	+42 32 16.9	Mar. 14, 21, 22, 23	"
095954	6.8	9 59 32.98	+40 5 50.2	Mar. 14, 21, 22, 23	"
		R. A. 1895.0.	Decl. 1895.0.		
125733	9¾	12 57 18.52	+16 6 42.9	April 22, May 7	Eucharis (181) E. E. B.
130138	9½	13 1 23.70	+15 35 24.4	April 15, 18	"
003045	8¾	0 30 29.58	+ 5 47 3.4	Aug. 21	Comet *a* 1895, E. E. B.
011414	8¾	1 13 59.10	+ 7 50 35.1	Oct. 9, 24	Comet *e* 1894, E. E. B.
011738	8	1 17 22.42	+ 8 11 19.9	Oct. 1, 7	"
011820	9¾	1 18 5.16	+ 8 31 45.5	Oct. 9, 24	"
012113	9	1 20 57.85	+ 8 59 4.8	Oct. 1, 7	"
013759	9	1 37 43.79	+ 4 33 36.9	Dec. 30	Comet *a* 1895, W. W. C.
014707	9¼	1 46 51.61	+ 6 1 57.5	Dec. 9	"
014915	9	1 48 59.67	+ 6 32 47.7	Dec. 24	"
015004	8¾	1 49 48.34	+ 6 45 20.0	Dec. 20	"
015153	9¼	1 51 37.80	+ 6 34 38.8	Dec. 24, 30	"
020342	8½	2 3 26.85	+ 7 55 34.3	Dec. 30	"
		R. A. 1896.0.	Decl. 1896.0.		
021532	8¼	2 15 19.53	+ 9 31 46.9	Jan. 6, 8	"
135102	8½	13 50 49.78	+ 0 7 0.1	Mar. 10	Comet *c* 1895, R. G. A.
135215	9	13 52 3.28	+ 0 10 6.2	Mar. 12	"

LIST 6.—MERIDIAN CIRCLE OBSERVATIONS OF COMPARISON STARS.

No.	Mag.	R. A. 1896.0.			Decl. 1896.0.			Observations.	Object.
		h	*m*	*s*	°	′	″		
191756	8¾	19	17	45.83	+16	8	11.2	June 24	Comet *c* 1895, C. D. P.
191910	8½	19	18	59.73	+15	33	29.2	June 25	"
191931	8½	19	19	20.67	+15	31	38.0	June 26	"
193901	9¼	19	38	48.44	− 5	2	19.2	June 24	"
193951	7	19	39	40.30	+ 8	28	38.7	June 25	"
194144	8¾	19	41	31.97	− 2	31	29.7	June 26	"
194354	9	19	43	41.72	− 6	17	14.9	June 24	"
194530	8¾	19	45	18.43	+ 0	27	42.0	June 25	"
194651	8	19	46	39.20	− 2	25	9.0	June 29	"
194710	8¾	19	46	58.03	− 1	32	18.4	June 26	"
220843	8¼	22	8	30.26	−16	42	1.1	Oct. 23, Nov. 4	Comet *c* 1896, W. J. H.
222003	9.5	22	19	50.02	−19	12	12.5	Sept. 17	"
222051	8.0	22	20	38.32	−19	5	32.6	Sept. 24	"
222101	9.2	22	20	48.01	−19	12	12.9	Sept. 29	"
223740	9	22	37	27.09	−18	35	45.0	Sept. 29	"
223752	8.5	22	37	39.33	−18	23	23.6	Sept. 17	"
223826	8.3	22	38	13.23	−18	8	42.6	Sept. 24	"
221548	9	22	15	44.14	+72	44	0.3	Oct. 23, 30	Orbit comet *b* 1896, R. G. A.
224443	8¾	22	44	36.88	+72	49	32.4	Oct. 23, 30	"
224959	9½	22	49	52.18	+72	54	46.8	Oct. 23, 30	"
230050	9½	23	0	42.52	+72	51	10.1	Oct. 30, Nov. 4	"
230101	9½	23	0	53.81	+72	48	59.3	Oct. 23	"
231601	9½	23	15	52.90	+72	44	10.0	Oct. 23, 30	"
235453	8½	23	54	41.53	+72	2	14.7	Oct. 23, 30	"
001705	9¼	0	16	52.52	+71	40	17.9	Oct. 23, 30	"
023213	9	2	31	55.44	+59	31	5.7	Dec. 8, 9	"
024801	9¼	2	47	43.69	+55	16	59.8	Dec. 8, 9	"
030643	8¾	3	6	30.30	+13	38	49.5	Dec. 8, 9	Comet II 1895, W. W. C.

Obs. Apparent Place Mercury, November 10, 1894, Transit.

Mercury app.	$15^h\ 3^m\ 33^s.36$	$-17°\ 12'\ 39''.4$	Am. Ephemeris = $33^s.26$ $28''.4$
Reduction to center of earth		+10 .5	Longitude = $2^h\ 58^m\ 22^s.8$

The list of 50 stars is here repeated, in the order of Right Ascension of the stars, reduced uniformly to 1895.0; and the precessions are included. A few references to existing Catalogues are given, but these are not complete.

B. VI = Vol. VI Bonn. W. B. = Weisse Bessel. R. = Rumker. Mu. = Munich. Dun. = Dunsink.

OBSERVED PLACES OF COMPARISON STARS: REDUCED TO 1895.0.

No.	Mag.	R. A. 1895.0			Prec.	Decl. 1895.0			Prec.	Obs.	Cat.
		h	*m*	*s*	*s*	°	′	″	″		
001705	9¼	0	16	49.15	+3.369	+71	39	57.9	+20.00	2	B. VI
003045	8¾	0	30	29.58	3.090	+ 5	47	3.4	19.88	1	
011414	8¼	1	13	59.10	3.131	+ 7	50	35.1	19.02	2	
011738	9¾	1	17	22.42	3.136	+ 8	11	19.9	18.92	2	
011820	9¾	1	18	5.16	3.140	+ 8	31	45.5	18.90	2	
012113	9	1	20	57.85	3.146	+ 8	59	4.8	18.81	2	
013759	9	1	37	43.79	3.117	+ 4	33	36.9	18.26	1	
014707	9¼	1	46	51.61	3.136	+ 6	1	57.5	17.91	1	
014915	9	1	48	59.67	3.143	+ 6	32	47.7	17.83	1	W. B.
015004	8¾	1	49	48.34	3.146	+ 6	45	20.0	17.80	1	
015153	9¼	1	51	37.80	3.145	+ 6	34	38.8	17.72	2	W. B.
020342	8½	2	3	26.85	3.168	+ 7	55	34.3	17.21	1	W. B.
021532	8¼	2	15	16.33	3.197	+ 9	31	30.2	16.67	2	B. VI
023213	9	2	31	50.97	4.470	+59	30	49.9	15.81	2	
024801	9¼	2	47	39.33	4.361	+55	16	44.9	14.92	2	
030643	8¾	3	6	26.99	3.308	+13	38	35.7	13.77	2	W. B.
090646	8.0	9	6	26.71	+3.983	+44	44	30.7	−14.57	4	W. B.
093750	6.9	9	37	31.56	3.787	+42	32	0.6	16.30	4	W. B.
095954	6.8	9	59	36.62	3.637	+40	5	32.9	17.35	4	W. B.
125733	9¾	12	57	18.52	+2.977	+16	6	42.9	−19.43	2	n. f. star
130138	9½	13	1	23.70	2.974	+15	35	24.4	19.34	2	
135102	8½	13	50	46.71	3.071	+ 0	6	17.8	17.75	1	R.
135215	9	13	52	0.21	3.071	+ 0	10	23.9	17.70	1	R.
191756	8¾	19	17	43.12	+2.708	+16	8	4.5	+ 6.67	1	W. B.
191910	8½	19	18	57.01	2.722	+15	33	22.4	6.77	1	
191931	8½	19	19	17.95	2.723	+15	31	31.2	6.80	1	W. B.
193901	9¼	19	38	45.26	3.180	− 5	2	27.6	8.38	1	Mu.
193951	7	19	39	37.41	2.892	+ 8	28	30.3	8.44	1	Mu.
194144	8¾	19	41	28.84	3.126	− 2	31	38.3	8.59	1	Mu.
194354	9	19	43	38.52	3.205	− 6	17	23.7	8.76	1	Dun.
194530	8¾	19	45	15.37	3.063	+ 0	27	33.1	8.89	1	W. B.
194651	8	19	46	36.08	3.123	− 2	25	18.0	8.99	1	W. B.
194710	8¾	19	46	54.93	3.104	− 1	32	27.4	9.02	1	W. B.
220843	8¼	22	8	27.00	3.260	−16	42	18.8	17.73	2	
221431	8.5	22	14	15.02	3.266	−17	59	28.2	17.96	3	
221548	9	22	15	42.96	1.183	+72	43	42.3	18.01	2	B. VI
221655	8.9	22	16	39.32	3.253	−17	12	54.9	18.05	3	
221951	9.5	22	19	35.62	3.243	−16	43	16.3	18.16	4	
222003	9.5	22	19	46.75	3.270	−19	12	30.7	18.17	1	
222051	8.0	22	20	35.05	3.267	−19	5	50.8	18.20	1	
222101	9.2	22	20	44.74	3.268	−19	12	31.1	18.20	1	
223740	9	22	37	23.86	3.231	−18	36	3.8	18.77	1	
223752	8.5	22	37	36.10	3.229	−18	23	42.4	18.77	1	
223826	8.3	22	38	10.00	3.226	−18	9	1.4	18.79	1	
224443	8¾	22	44	35.20	1.675	+72	49	13.4	18.98	2	
224959	9½	22	49	50.42	1.762	+72	54	27.7	19.12	2	
230050	9½	23	0	40.56	1.964	+72	50	50.7	19.38	2	B. VI
230101	9½	23	0	51.84	1.970	+72	48	39.9	19.39	1	
231601	9½	23	15	50.65	2.249	+72	43	50.3	19.68	2	B. VI
235453	8½	23	54	38.55	2.977	+72	1	54.7	20.05	2	

APPENDIX.

COMPARISON OF 310 STARS WITH AUWERS AND NEWCOMB.

The opportunity has been taken to compare the observed places of the full list with the new reductions of Standard Star places by Doctor AUWERS, and by Professor NEWCOMB. The corrections to the A. G. system have been printed in A. N. 3508, 3509; and Newcomb's discussion is published in Vol. VIII, Part II, of the Astronomical Papers of the American Ephemeris. This last includes all the standard stars observed here, except one, P. 305 $6^h\ 56^m + 29°$ C. T.

The systematic difference between the two new standards, is well marked; the 86 Equatorial stars, used as fundamental here, give the mean difference:

(A − N) $-0^s.031$, $v \pm 0^s.008$; and $-0''.29$, $v \pm 0''.14$; at $+2°.6$

As regards accidental errors, the places of the observed list have small residuals; the probable errors do not appear to exceed $\pm 0^s.011$ sec. δ and $\pm 0''.11$, within the B. J. limits. For the Southern Stars, the probable errors appear to be larger.

Table XXIX gives the results of comparison, arranged in hourly groups. Table XXX gives the same results, arranged in groups of 10 degrees of Declination.

TABLE XXIX.

310 — Auwers. 1895.0.					310 — Newcomb. 1895.0.				
No.	h	°	s	″	No.	h	°	s	″
6	0.6	+35.9	−.003 sec. δ	−0.18	13	0.6	+18.4	−.010 sec. δ	−0.37
7	1.5	38.1	−.012	− .12	12	1.4	38.0	−.029	− .32
8	2.7	23.6	+.006	+ .09	14	2.6	13.0	−.017	− .27
6	3.6	31.4	−.005	+ .14	8	3.5	28.9	−.030	− .02
6	4.5	24.9	.000	− .01	13	4.5	12.0	−.018	− .35
8	5.4	21.7	+.003	+ .01	17	5.4	10.1	−.013	− .35
8	6.5	38.4	−.005	− .07	12	6.5	20.5	−.018	− .22
4	7.5	23.9	−.016	− .17	13	7.6	13.5	−.029	− .50
6	8.4	23.2	−.017	− .07	13	8.5	20.3	−.024	− .26
6	9.6	28.9	+.001	− .23	8	9.5	18.0	−.019	− .39
3	10.7	31.8	−.012	+ .07	10	10.5	24.7	−.024	− .01
5	11.6	17.6	−.001	− .02	11	11.6	11.4	−.013	− .33
6	12.5	27.2	−.007	.00	12	12.6	28.5	−.033	− .24
4	13.5	17.5	−.006	+ .07	8	13.4	5.6	−.024	− .50
6	14.5	25.9	−.005	+ .02	14	14.5	12.2	−.028	− .19
5	15.6	30.6	−.010	+ .11	12	15.6	22.8	−.025	− .31
7	16.5	37.4	−.010	+ .04	14	16.5	20.8	−.015	− .20
8	17.6	30.6	−.007	+ .12	17	17.5	3.4	−.012	− .28
8	18.5	38.7	−.012	+ .11	18	18.5	9.2	−.010	− .21
10	19.4	29.9	−.016	+ .03	17	19.4	14.2	−.034	− .27
8	20.5	34.2	−.006	− .03	14	20.6	17.7	−.017	− .44
6	21.4	35.5	−.003	+ .13	14	21.4	21.5	−.006	− .29
5	22.5	13.6	+.002	+ .03	8	22.4	16.7	−.017	− .30
6	23.5	27.8	+.003	+ .04	17	23.5	16.0	−.012	− .27
152	Mean by stars,		−.006 sec. δ	+0.01	309	Mean by stars,		−.020 sec. δ	−0.29
	v one star,		±.014 sec. δ	±0.16		v one star,		±.019 sec. δ	±0.21*
	Fundamental stars;		+.001 sec. δ	+0.02					

*The Decl. residual is from group means, Table XXX.

TABLE XXX.

Comparison with AUWERS and NEWCOMB arranged in order of Declination.

L. O. 310 — Auwers. 1895.0.				L. O. 310 — Newcomb. 1895.0.				
Stars.	°	s	″	Stars.	°	s	″	v ″
9	85.4	−.014 sec. δ	−0.06	18	85.7	−.010 sec. δ	−0.07	±0.16
36	74.5	−.013	+0.02	39	74.8	−.027	−0.02	.22
—	—	—	—	8	68.5	−.033	−0.11	.13
45	76.7	−.013	0.00	1	54.4	−.009	−0.33	—
				5	41.0	−.033	−0.18	.11
21	37.3	−.018	−0.07	30	36.5	−.024	−0.15	.30
				11	23.4	−.037	−0.09	.15
16	12.7	−.017	−0.09	25	13.6	−.039	−0.20	.21
35	+5.7	−.001	+0.11	54	+5.3	−.023	−0.18	.16
35	−5.0	+.012	−0.01	47	−5.3	−.023	−0.38	.14
—	—	—	—	21	16.1	−.006	−0.52	.32
86	+2.6	+.001	+0.02	22	26.2	−.001	−0.51	.26
				28	35.4	+.013	−0.86	.36